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MICROELECTRONIC DEVICE DATA HANDBOOK

Volume 2: Manufacturer and Specific Device Information

Prepared by
ARINC RESEARCH CORPORATION
Annapolis, Md.
for Electronics Research Center

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION • WASHINGTON, D. C. • JULY 1968

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FOREWORD

This document provides guidance for the selection and application of microelectronic devices in space systems. Emphasis is placed upon considerations affecting reliability of systems employing such devices.

This handbook consists of two volumes. Volume I comprises six sections of user-oriented technical discussion, ranging from design, manufacture, use of the devices in subsystems, and specifications to reliability and failure physics. Volume II lists and gives the characteristics of approximately 2,000 devices, arranged to facilitate device selection.

The material presented herein was prepared by ARINC Research Corporation, under contract number NAS 12-528, NASA Work Unit No. 125-25-04-25-25. Some of the material used is copyrighted; permission for its use is gratefully acknowledged.

The U.S. Army Electronics Command, DOD, through its standardization program, Project 5962-004, has reviewed the drafts and provided editorial and technical comments.

This document will be revised periodically; comments and suggestions regarding forthcoming issues are solicited, and should be directed to:

NASA Electronics Research Center
Qualifications and Standards Laboratory
Component Standards Branch
575 Technology Square
Cambridge, Massachusetts 02139

CONTENTS

1. INDEX OF MANUFACTURERS

Companies engaged in manufacturing standard microelectronic devices are listed in Table 1 along with basic information on the nature of their devices.

TABLE 7-1

INDEX OF MANUFACTURERS OF MICROELECTRONIC DEVICES

Manufacturer's Name and Address	Code in Devices Catalog	Basic Logic	Technology*
Alpha Microelectronics Co., Inc. 10501 Rhode Island Avenue Beltsville, Maryland			M
Amelco, Inc. Semiconductor Division 1300 Terra Bella Avenue Mountain View, California	AMEL	DCTL RTL	F
Burroughs Corporation Plainfield, New Jersey			M
Corning Electronics 3900 Electronics Drive Raleigh, North Carolina	CORN	DTL	D
CTS Research, Inc. 2101 Cumberland Avenue West Lafayette, Indiana			O
Fairchild Semiconductor 545 Whisman Road Mountain View, California	FSC	RTL TTL DTL	A
General Electric Semiconductor Products Dept. Electronics Park Syracuse 1, New York	GESP	ECL	A F G
General Electric Light Military Electronics Dept. Utica, New York	GELM		N
General Instruments Corporation 600 W. John Street Hicksville, New York	GI	DTL	H K
Philco-Ford 2920 San Ysidro Way Santa Clara, California	PHIL	RTL TTL	A F K
Halex 139 Maryland Street El Segundo, California			M
ITT Semiconductors 3301 Electronics Way West Palm Beach, Florida 33402	ITT	OTL	A
Hughes Aircraft Company Semiconductor Division Newport Beach, California	HUGH	TTL	M
Intellux, Inc. P. O. Box 929 Santa Barbara, California	INTX	TRL	L
Mepco, Inc. 35 Abbett Avenue Morristown, New Jersey	MEPC	DTL	E
Motorola Semiconductors Box 955 Phoenix, Arizona	MOTA	DTL ECL	A F J
National Semiconductor Corp. Danbury, Connecticut	NSC	RTL	A M
Norden Division of United Aircraft Norwalk, Connecticut	NORD	RTL	R F
Philco Lansdale Division Lansdale, Pennsylvania	PHIL	RTL	A J
Radiation, Inc. Melbourne, Florida	RAD	DTL	C J
Radio Corporation of America Harrison, New Jersey	RCA	ECL DTL	A
Raytheon Semiconductor Division 350 Ellis Street Mountain View, California	RAY	DTL	A
Signetic Corporation 680 West Maude Avenue Sunnyvale, California	SIGN	TTL DTL	A
Siliconix, Inc. 1140 W. Evelyn Avenue Sunnyvale, California	SILX	DTL Mod.DTL TTL	A
Sperry Semiconductor Norwalk, Connecticut, 06852	SPER	RTL	B
Sprague Electric Company North Adams, Massachusetts	SPRG	RCTL	F M
Stewart-Warner Microcircuits, Inc. 730 East Evelyn Avenue Sunnyvale, California	SW	DTL TTL ECL	A
Sylvania Electric Products, Inc. Semiconductor Division Woburn, Massachusetts	SYL	TTL	B
Texas Instruments, Incorporated Semiconductor Components Div. P. O. Box 5012 Dallas 22, Texas	TI	RCTL Mod. DTL TTL	A F J
Transitron Electronic Corp. Wakefield, Massachusetts	TRAN	TTL	B
Varo, Incorporated 2201 Walnut Street Garland, Texas	VARO	DTL TRL	E
Westinghouse Electric Corp. Molecular Electronics Division P. O. Box 1836, Baltimore Elkridge, Maryland	WMED	ECL DTL	A J

*Indicates technology of devices listed in devices catalog only and hence does not necessarily indicate total capability. See Table 4 for explanation of code.

2. CATALOG OF DEVICES

2.1 General

The catalog of microelectronic devices is restricted to those devices that are integral units and that cannot be broken down into smaller segments without destruction of the entire unit. The catalog is further restricted, in general, to those devices in which all active and passive elements necessary to a fully operable circuit are included and intraconnected in one package. A few of the devices tabulated offer only questionable compliance with these requirements; however, these exceptions are readily identifiable in the schematic diagrams (see Section 2.5).

It cannot be stressed too strongly that this catalog must be considered as an initial reference and used accordingly. Detailed appraisal of a circuit must include reference to the manufacturer's data sheet or consultation with the manufacturer. In the extraction of data for the catalog from the individual manufacturers' data sheets, a number of factors made it impossible to provide a standard tabulation with values that were exactly comparable from one circuit to another. These factors included the variety of formats used, the variety of information presented, the variety of words used to describe the same item, the variety of definitions applied to the same words, and the variety of testing conditions. The reported characteristics and the manner of their presentation, however, have been restricted and selected so that the values listed from circuit to circuit are reasonably comparable. The user is urged to read carefully section 2.2, "Notes Concerning Column Headings," in order to avoid misunderstandings from some of the arbitrary definitions that were necessary to maintain a reasonable degree of uniformity in the catalog.

The catalog has been developed with separate sections for linear circuits, digital circuits, and digital arrays. The digital circuits and digital arrays are presented in the same format. In the linear-circuit format, the column headings for electrical characteristics are somewhat different.

2.2 Notes Concerning Column Headings

2.2.1 Digital and Linear Circuit Formats

CIRCUIT DESCRIPTION - Devices are listed alphabetically according to circuit function. However, descriptive titles for circuit functions are by no means standard throughout the electronics industry. For example, one manufacturer's

"Driver" is another manufacturer's "Buffer", and yet another manufacturer's "Inverter". In the device catalog, all like functions have been assigned the same descriptive title -- regardless of the manufacturer's terminology -- according to the following criteria:

(1) All logic functions are described in the positive logic mode. For example, a function is described as an "AND" gate if all inputs are required to be at the high level (logic "1") to acquire a high-level output.

(2) If a slash mark appears between two descriptive terms, the device can be used to perform either of the two functions described. For example, if circuitry for a complementary output were added to the device described in Note 1, it would be described as an "AND/NAND" gate, and cross-listed as "NAND/AND" gate.

(3) When a hyphen appears between two or more descriptive terms, the device is a multifunction circuit which performs functions in series or series-parallel as described, and in the order listed, in the title. For example, if the outputs from two "AND" gates are applied to the input of a "NAND" gate, the circuit is described as an "AND-NAND" gate. If multifunction circuits contain stages that operate in parallel, the parallel functions are listed in alphabetical order. For example, if one of the input "AND" gates in the prior example were an "OR" gate, the device would be described as an "AND-OR-NAND" gate. The circuit schematic must be consulted to determine the precise configuration.

(4) If a device contains more than a single circuit and the circuits are functionally independent, the term "DUAL", "TRIPLE", or "QUAD", as appropriate, will follow the generic name. The circuits are usually identical but not in every case; the majority of exceptions involve a difference in the number of gate inputs. For example, if a device contained three identical "NAND" gates, each with three inputs, the device would be described as a "NAND, TRIPLE 3 INPUT" gate. On the other hand, if one of the circuits had only two inputs, the description would be "NAND, TRIPLE 2-3-3 INPUT" gate.

(5) All abbreviations are explained in Section 2.3.

MFR (Manufacturer) - The code name can be interpreted by reference to the Index of Manufacturers of Microelectronic Devices (Table 1).

TECH (Technology) - The code letter can be interpreted by reference to Table 4. These codes should not be confused with the Electrical Characteristic Codes. (Letter symbols are used for both.)

OPER TEMP CNTGRDE (Operating Temperature, Centrigrade) - The temperatures defined by the MIN and MAX columns represent absolute limits. Operation outside this range may be detrimental to the device. The sign has been omitted in the MAX column on the format for linear devices and should be understood as being positive in every case.

SUPPLY VOLTAGE VDC (Supply Voltage, DC Volts) - This field, divided into two separate columns, will indicate a requirement for a third power supply if a letter code (explained in Table 7) appears in column 2. The voltage(s) listed are consistent with the values listed for other electrical characteristics of the device; however, the majority of digital devices may be operated at different voltage supply levels, with corresponding trade-offs in values of the other characteristics. The values coded as maximum are absolute; operation above these maximums may be detrimental to the device.

PACKAGE TYPE - The numbers or letters appearing in this column refer to the Package Outline Drawings that are compiled in Section 2.4. A letter code is used to designate a package that has a JEDEC number and is registered with the EIA. Table 5 explains this code. Numbers are used for unregistered packages.

An asterisk is used in the column to show when additional packages are available for that particular device but have not been listed because of space limitations.

SCHEMATIC NO. - The numbers in this column refer to the schematic drawings in Section 2.5. A letter code appears after the schematic number if there is an exception to the given drawing. This code is explained in Table 6.

2.2.2 Digital-Circuit and Digital-Array Formats

PWR DIS MW (Power Dissipation Milliwatts) - This field presents typical power supply drain at 25°C. The values in the column represent the average power drain at a 50-percent duty cycle. When multiple-circuit devices (dual, triple, etc.) are encountered, the values presented are for one circuit.

FAN OUT - The value in this column represents the number of like-stage inputs that can be direct-coupled to each output of the circuit, over the stated operating-temperature range. When the value is coded as maximum, it represents the fan out possible under the most favorable conditions and usually at 25°C. When two values appear in this column, the circuit has two output terminals with different fan-out capabilities. In this case, one of the outputs will usually be from an emitter follower. Generally, such multiple outputs can drive the stated loads simultaneously.

INPUT THRESHOLD VOLTS - The value in the column headed ZERO indicates the maximum voltage that can be applied to the circuit without turning on the input transistor. Any voltage below this level will be processed by the circuit as a "logic zero". The values under the ONE column represent the minimum voltage that can be applied to the input without turning off the input transistor. Any level

above this value will be processed by the circuit as a "logic one". Values in both columns are worst case at 25°C. Values shown are negative when the value in the ZERO column is greater than that in the ONE column.

NOISE IMMUNITY VOLTS - This is the difference between the input threshold level and the corresponding output level of the circuit. The column is included only as a convenience, since noise-immunity voltage is simply the lower of the following two differences:

(1) Input-threshold zero minus output-level zero

(2) Output-level one minus input-threshold one

DELAY NANOSECS - The values in this column represent the maximum delay at 25°C. It is the sum of the turn-on delay and turn-off delay divided by 2. The values should be considered as gross approximations since they are highly dependent upon the conditions under which they are measured and upon the various definitions used to define turn-on time and turn-off time.

OPERATING SPEED MHZ - The values in this column represent the maximum clock rates for which the circuit was designed to operate, over the stated temperature range. Values coded as maximum indicate possible operating speeds under the most favorable conditions and at 25°C.

OUTPUT LEVEL VOLTS - The value in the column headed ZERO indicates the maximum low-level voltage that will appear at the output. The values in the column headed ONE indicate the minimum high-level voltage that will appear at the output. Both columns are worst-case values at 25°C. Values shown are negative when the value in the ZERO column is greater than that in the ONE column.

2.2.3 Linear Format Only

SUPPLY POWER MILLIWATTS - The value in this column represents the typical power drain from the supply at 25°C with no signal applied to the input. When a multiple circuit device (dual, triple, etc.) is encountered, the value shown is the power drain per circuit. A value coded as maximum indicates the absolute maximum power that can be dissipated by the device. Operation beyond this value may be detrimental to the device.

IMPEDANCE - The value shown is typical at 25°C.

GAIN - The value appearing in the VOLTAGE V/V column represents the ratio of output voltage to input voltage and is typical at 25°C. The value in the POWER DB column represents the ratio of output power to input power expressed in decibels. The values shown are typical at 25°C.

3 DB B.W. MHz (Three-dB Bandwidth, Megahertz) - The value shown is typical at 25°C and represents the upper frequency at which gain is 3 dB down from the flat response. The lower 3-dB frequency is generally a few hundred hertz or less.

N.F. DB (Noise Figure) - The value shown is typical at 25°C. Units are decibels.

COM.MODE REJ.DB (Common Mode Rejection) - The value shown is typical at 25°C. Units are decibels.

DIFF. OFFSET MV (Differential Offset, Millivolts) - The value shown is the maximum input differential-offset voltage and is the typical value at 25°C.

H.D. % MAX (Harmonic Distortion) - The value is shown as a percentage; it represents the maximum harmonic distortion at 25°C.

OUTPUT SIGNAL - The value shown under the column headed SWING represents the peak-to-peak voltage that can be obtained without clipping and is typical at 25°C. The value shown in the column headed POWER represents the available load power consistent with the specified distortion or, in cases where distortion is not applicable, the rated power-dissipation characteristic of the device.

2.3 Codes and Abbreviations

Codes and abbreviations used are presented in Tables 2, 3, 4, 5, 6, and 7.

TABLE 2
ELECTRICAL CHARACTERISTIC CODES

Code	Explanation
*	Maximum
#	Minimum
A	Divide by 1000
B	Multiply by 1000
C	Divide by 100
D	Multiply by 100
E	Divide by 10
F	Multiply by 10
J	Microwatts divided by 10
K	Maximum forward current in milliamps
L	Diode reverse recovery time
M	Multiply by 10^{10}
P	Single ended
R	Input
S	Output
T	Typical
W	Worst case
X	Maximum milliamps

TABLE 3
ABBREVIATIONS

Abbreviation	Explanation
BCD to B	Binary Coded Decimal to Binary
BCD to D	Binary Coded Decimal to Decimal
CLCKD	Clocked
CPS	Cycles per second
DB	Decibel
DIFF	Differential
DIR	Direct
D to A	Digital to Analog
EX	Expandable
GND	Ground
H.D.	Harmonic Distortion
IF	Intermediate Frequency
INP	Input
MHz	Megacycles per second
MONO	Monostable
N.F.	Noise Figure
PH	Phase
REV	Reverse
TRNSTRS	Transistors
SP	Split
VDC	Volts DC
VF	Variable Feedback
WC	With Complement

TABLE 4
MANUFACTURER TECHNOLOGY CODES

Code	Explanation
A	Silicon, monolithic, planar-diffused, epitaxial, passivated. Gold leads to aluminum metalization.
B	Same as A, except that all intraconnections are monometallic.
C	Same as A, but also has polycrystalline isolation.
D	Alumina substrate glazed with alkali-free glass. Resistors formed by photoresist masking and subsequent etching of tin oxide deposited by non-vacuum process. Copper conductor material is applied by an electrolysis silk-screen process. Transistors are discrete silicon face-bonded chips.
E	Alumina substrate. Resistors are vacuum-deposited nichrome. Transistors, diodes, and capacitors are attached discrete components.
F	Same as A, but without epitaxy.
G	Alumina substrate; cermet resistors; metal-slurry intraconnections and capacitors applied by silk-screen process brazed to substrate. Active devices are planar passivated silicon chips bonded to wafer. Connections from chips are thermocompression-bonded wire leads.
H	Multichip; all circuit elements as separate planar epitaxial passivated silicon chips bonded to a non-conductive substrate. Intraconnections are thermocompression-bonded wires. Multiple internal connections to a single node are made to vacuum-deposited or brazed metal-slurry leads. When possible, chips are bonded directly to metal header or header post for greater heat dissipation and reduced lead length. Construction details will depend in large measure on circuit type and design.
J	Same as A, except that resistors are vacuum-deposited on the monocrystalline substrate.
K	Monolithic device consisting of metal-oxide-silicon transistors. Source and drain regions are planar-diffused. Isolation layer is silicon monoxide. Gate electrodes and intraconnections are vacuum-deposited aluminum.
L	Resistors formed by photoresist masking of pyrolytically deposited tin oxide on glass of matched expansivity. Film thickness is typically 2500Å; line widths are 0.003" minimum. Terminations and capacitor plates are silk-screened silver slurry; after silk-screening, they are fired. Passive components are hermetically sealed by a fusible powdered glass, which also serves as a dielectric for the capacitor. Intraconnection patterns are electroplated and photo-etched. Active devices are cased in TO-18 or TO-46 cans and are attached by welding.
M	Thin-film passive components with active devices separately attached.
N	Thin-film resistors and conductors vacuum-deposited on ceramic substrate. A monolithic diffused silicon chip containing all active devices is attached to the ceramic substrate; and intraconnections between chip, substrate, and bonding posts are thermocompression-bonded leads.
O	Cermet resistors; discrete active devices separately attached.
P	Conductors and capacitors deposited on a nonconducting substrate. Inductor leads are bonded to conductor pads on the substrate.
R	Multichip; selected portions of the circuit are planar diffused into two or more silicon chips. The chips are intraconnected with thermocompression-bonded wire leads.
S	Same as C, but the intraconnections are monometallic.
T	Same as S, except the resistors are vacuum-deposited.

TABLE 5
PACKAGE CODES

Letter	TO Number	Page Numbers
A	TO-99	2-9
B	TO-100	2-10
C	TO-86	2-14
D	TO-70	2-9
E	TO-79	2-9
F	TO-84	2-14
G	TO-85	2-14
H	TO-116	2-20
J	TO-80	2-9
K	TO-101	2-11
L	TO-74	2-10
M	TO-76	2-9
N	TO-77	2-9
P	TO-78	2-9
Q	TO-97	2-10
R	TO-73	2-11
S	TO-91	2-15
T	TO-89	2-15
U	TO-90	2-15
V	TO-95	2-22
W	TO-87	2-22
X	TO-88	2-22

TABLE 6
SCHEMATIC EXCEPTION CODES

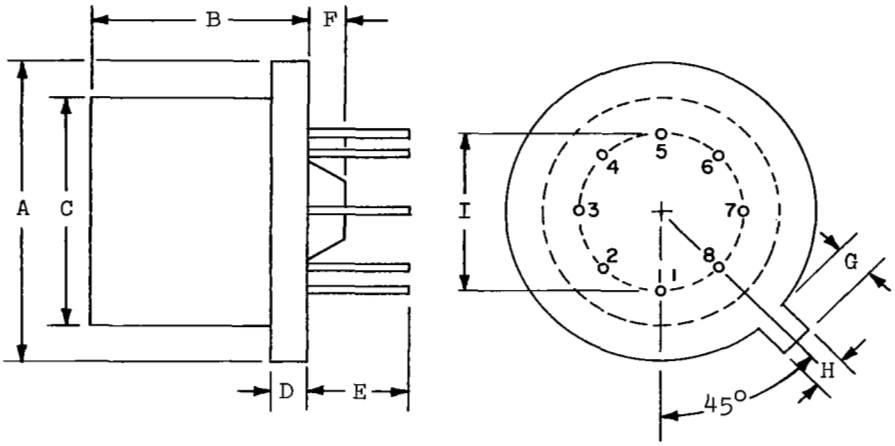
Letter	Exception
A	No pull-up resistor
B	R1, R2, Q1 omitted
C	Terminal A omitted
D	A and B intraconnected
E	No resistor; diodes reversed
F	No resistor
G	Short out R2
H	Short out R1, R2
J	S2, S3, C2 C3 omitted
K	PNP transistors, diodes reversed
L	Output resistors omitted
M	R2 omitted
N	R1, R2 omitted
P	Omitted Q1, Q5 input to Q2 Q4
Q	No capacitors
R	Short out R6, R7
S	CR1 omitted
T	R1 off GND and to output
U	R1, C1, omitted
V	R4, Q1 omitted
W	PNP Devices
X	Gates are 4 INP plus CLCK
Y	Delete dashed-line area
Z	NPN devices

TABLE 7
THIRD POWER SUPPLY CODES

Letter	Voltages of Third Power-Supplies
A	10
B	5
C	6
D	12
E	24

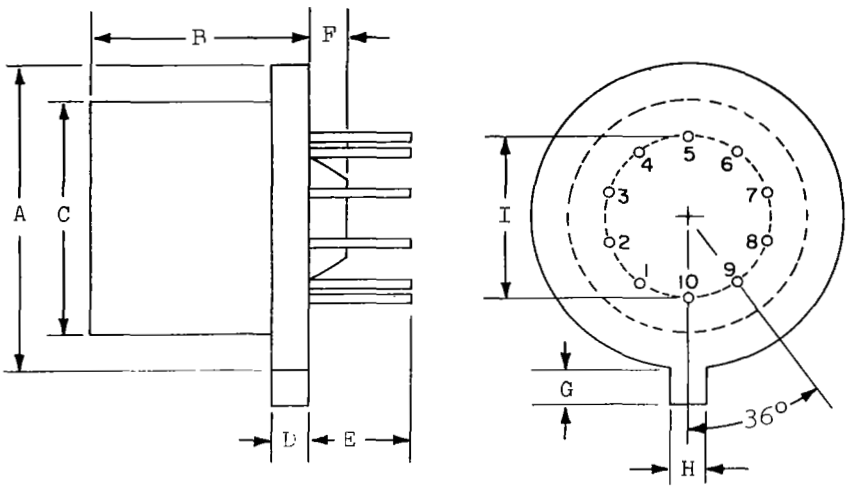
2.4 Outline Drawings

Outline drawings of packages used for microelectronic devices are shown on the following pages. The specific configurations are indexed -- by type, letter, and number -- in the Catalog of Devices. The dimensions shown are in inches.



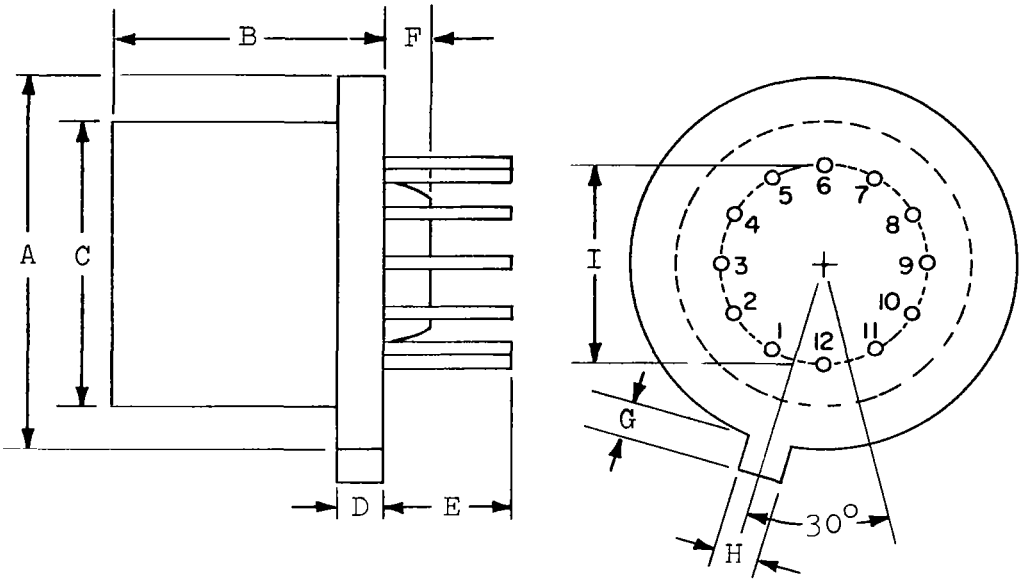
Type No.*	A	B	C	D	E	F	G	H	I	Lead Dia.
0	0.370 0.290	0.180 0.160	0.335 0.290	0.125 0.009	1.500 Min.		0.029 Min.	0.034 0.028	0.210 0.190	0.019 0.016
1	0.370 0.335	0.185 0.165	0.335 0.305	0.040 Max.	0.500 Min.	0.050 Max.	0.045 0.029	0.034 0.028	0.200	0.019 0.016
2	0.370 0.355	0.180 0.170	0.325 0.315	0.030 0.020	1.500 Min.	0.045 0.015	0.033 0.028	0.034 0.028	0.210 0.190	0.019 0.016
3	0.365 Max.	0.180 Max.	0.327 Max.	0.030 Max.	0.750 Min.	0.040 Max.	0.033 0.029	0.034 0.028	0.210 0.190	0.019 0.016
4	0.360	0.180 Max.	0.335		0.750					0.230
5	0.362 0.358	0.185 0.165	0.328 0.322	0.025	1.530	0.030	0.034 0.029	0.034 0.028	0.200	0.019 0.016
6	0.270 0.240	0.085 0.065	0.240 0.205	0.040 Max.	0.500 Min.	N/A	0.025 0.015	0.025 0.015	0.141	0.019 0.016
7	0.370 0.355	0.180 0.170	0.305 0.335		1.500 Min.		0.045 0.029	0.028 0.034	0.210 0.190	0.019 0.016
8	0.270 0.240	0.080 0.060	0.240 0.220	0.040 Max.	1.5 Min.		0.025 0.015	0.025 0.015	0.141	0.019 0.016
9	0.365 0.355	0.180 0.170	0.325 0.315		0.500 Min.		0.033 0.029	0.034 0.028	0.210 0.190	0.019 0.016
TO99	0.370 0.335	0.185 0.165	0.335 0.305	0.040 Max.	0.500 Min.	0.050 Max.	0.045 0.029	0.034 0.028	0.200	0.019 0.016
TO70	0.270 0.240	0.085 0.065	0.240 0.205	0.040 Max.	0.500 Min.	N/A	0.025 0.015	0.025 0.015	0.141	0.019 0.016
TO79	0.370 0.325	0.160 0.140	0.335 0.305	0.040 Max.	0.500 Min.	N/A	0.045 0.029	0.034 0.028	0.200 Typ.	0.019 0.016
TO80	0.370 0.335	0.105 0.085	0.335 0.305	0.040 Max.	0.500 Min.	N/A	0.045 0.029	0.034 0.028	0.200 Typ.	0.019 0.016
TO76	0.370 0.335	0.260 0.240	0.335 0.305	0.040 Max.	0.500 Min.	0.040 0.010	0.045 0.029	0.034 0.028	0.200 Typ.	0.019 0.016
TO77	0.370 0.335	0.260 0.240	0.335 0.305	0.040 Max.	0.500 Min.	N/A	0.045 0.029	0.034 0.028	0.200 Typ.	0.019 0.016
TO78	0.370 0.335	0.185 0.165	0.335 0.305	0.040 Max.	0.500 Min.	N/A	0.045 0.029	0.034 0.028	0.200 Typ.	0.019 0.016

*Package Type



Type No.*	A	B	C	D	E	F	G	H	I	Lead Dia.
10	0.360	0.180	0.325		0.300 Min.		0.034 0.026	0.034 0.028	0.230	0.019 0.016
11	0.370 0.335	0.185 0.165	0.335 0.305	0.040 Max.	0.500 Min.	0.050 Max.	0.045 0.029	0.034 0.028	0.230	0.019 0.016
12	0.370 0.355	0.180 0.170	0.325 0.315	0.030 0.020	0.750 Min.	0.045 0.015	0.040 0.030	0.034 0.028	0.240 0.220	0.019 0.016
13	0.360	0.180 Max.	0.335		0.750				0.230	
14	0.362 0.358	0.102 0.096	0.302 0.298	0.025	1.53	0.025	0.034 0.029	0.034 0.028	0.230	0.019 0.016
15	0.370 0.350	0.175 Max.	0.335 0.322	0.035	0.165 0.150				0.200	0.019 0.016
16	0.370 0.290	0.180 0.160	0.335 0.290	0.125 0.009	1.50 Min.		0.029 Min.	0.034 0.028	0.210 0.190	0.019 0.016
17	0.365 Max.	0.180 Max.	0.327 Max.	0.030 Max.	0.750	0.040 Max.	0.033 0.029	0.034 0.028	0.235 0.220	0.019 0.016
18	0.370 0.290	0.180 0.140	0.335 0.290	0.125 0.009	1.50 Min.		0.029 Min.	0.034 0.028	0.230	0.019 0.016
19	0.370 0.335	0.260 0.240	0.335 0.305	0.040 Max.	0.500 Min.	0.050 Max.	0.045 0.029	0.034 0.028	0.230	0.019 0.016
TO 100	0.370 0.335	0.185 0.165	0.335 0.305	0.040 Max.	0.500 Min.	0.040 0.010	0.045 0.029	0.034 0.028	0.230 Typ.	0.019 0.016
TO97	0.370 0.335	0.160 0.140	0.335 0.305	0.040 Max.	0.500 Min.	N/A	0.045 0.029	0.034 0.028	0.230 Typ.	0.019 0.016
TO96	0.370 0.335	0.260 0.240	0.335 0.305	0.040 Max.	0.500 Min.	N/A	0.045 0.029	0.034 0.028	0.200 Typ.	0.019 0.016
TO74	0.370 0.335	0.260 0.240	0.335 0.305	0.040 Max.	0.500 Min.	0.050 Max.	0.045 0.029	0.034 0.028	0.200 Typ.	0.019 0.016

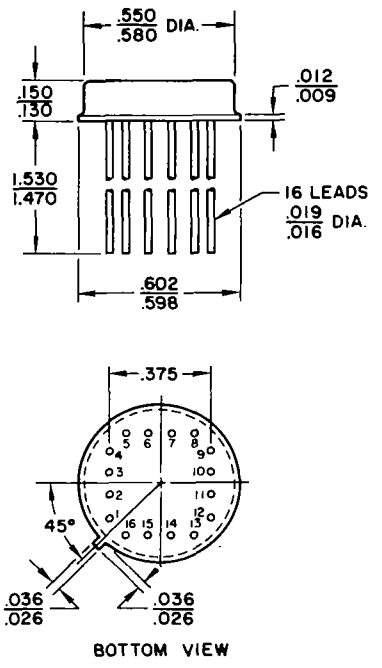
*Package Type



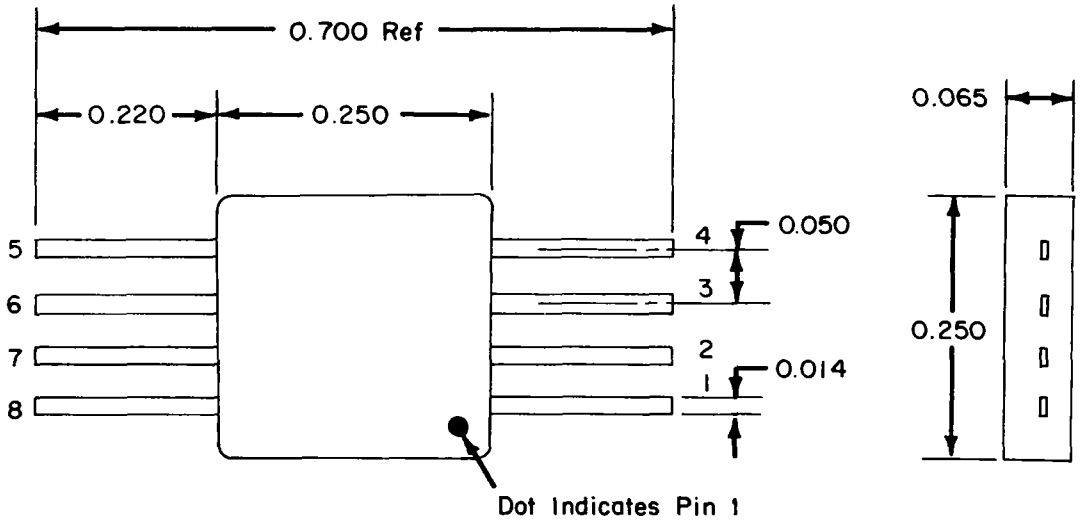
Type No.*	A	B	C	D	E	F	G	H	I	Lead Dia
20	0.370 0.355	0.180 0.170	0.335 0.305		1.500 Min.		0.045 0.029	0.034 0.028	0.210 0.190	0.019 0.016
21	0.365 0.355	0.180 0.170	0.325 0.315		0.500 Min.		0.033 0.029	0.034 0.028	0.210 0.190	0.019 0.016
22	0.370 0.355	0.180 0.170	0.325 0.315	0.030 0.020	0.750 Min.	0.045 0.015	0.040 0.030	0.034 0.028	0.240 0.220	0.019 0.016
23	0.370 0.350	0.160 0.140	0.335 0.305	0.040 Max.	0.250 Min.	0.040 0.010	0.045 0.029	0.034 0.028	0.160 0.140	0.019 0.016
24	0.362 0.358	0.185 0.165	0.328 0.322	0.025 Typ	1.530 Typ	0.030 Typ	0.034 0.029	0.034 0.028	0.200 Typ	0.019 0.016
25	0.370 0.335	0.180 Max.	0.335 0.305		0.500 Min.		0.045 0.024	0.034 0.028	0.245 0.215	0.020 0.016
26	0.360	0.180 Max.	0.325 Max.		0.300 Min.		0.034 0.026	0.034 0.028	0.200	0.019 0.016
27	0.370 0.350	0.190 0.170	0.335 0.315	0.030 0.020	0.300 Min.		0.33 0.28	0.34 0.28	0.240 0.220	0.019 0.016
TO73	0.370 0.335	0.260 0.240	0.335 0.305	0.040 Max.	0.500 Min.	N/A	0.045 0.029	0.034 0.028	0.200 Typ.	0.019 0.016
TO 101	0.370 0.335	0.185 0.165	0.335 0.305	0.040 Max.	0.500 Min.	0.040 0.010	0.045 0.029	0.034 0.028	0.230 Typ.	0.019 0.016

*Package Type

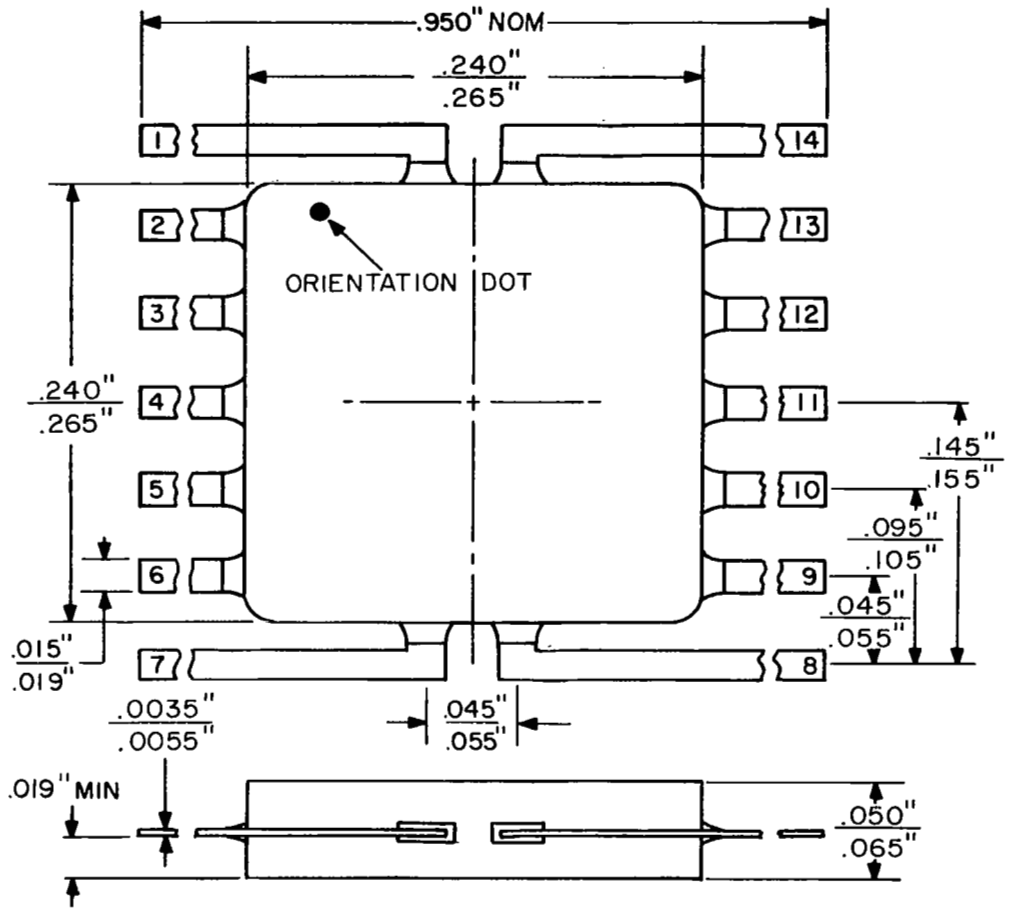
G package



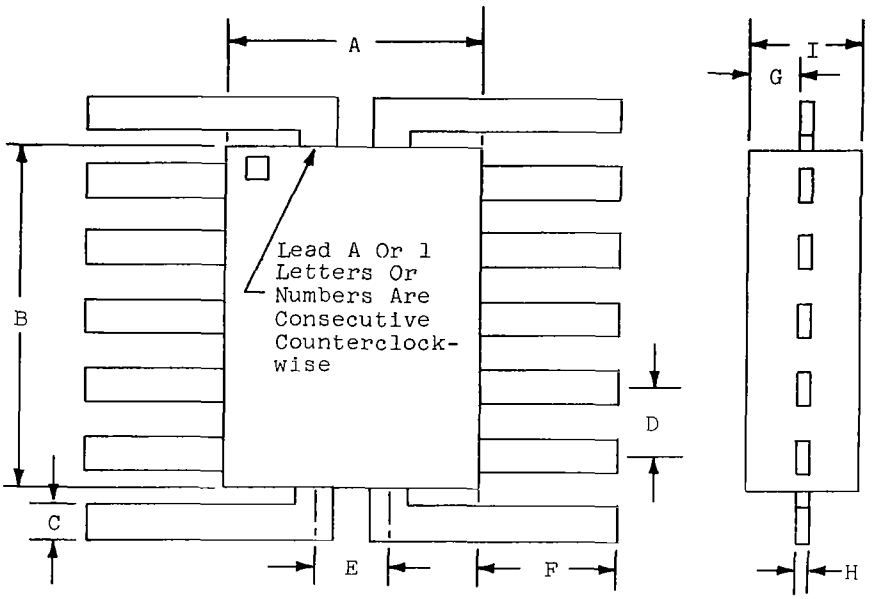
PACKAGE TYPE 30



PACKAGE TYPE 31

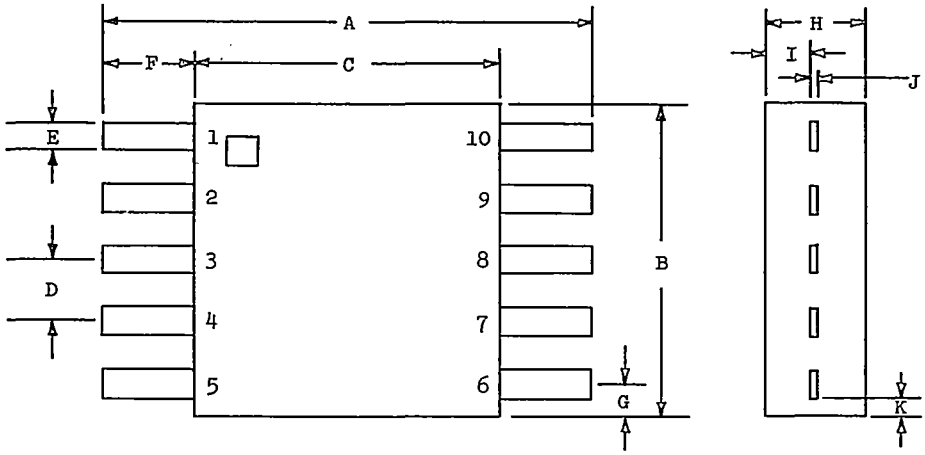


PACKAGE TYPE 36



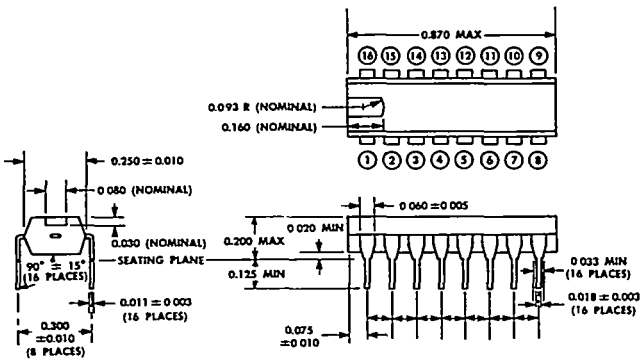
Type No.*	A	B	C	D	E	F	G	H	I
37	0.250	0.250	0.017	0.050		0.375 Max.			0.065
38	0.140	0.250	0.012	0.050		0.180			0.055 Max.
40	0.195 0.165	0.270 0.240	0.018 0.014	0.050	0.050	0.350 Min.	0.008 0.022	0.005 0.003	0.055 0.040
41	0.240 0.230	0.240 0.230	0.018 0.016	0.050			0.010 Min.	0.004 0.003	0.060 0.048
42	0.135 0.115	0.260 0.240	0.012	0.050		0.180 Min.	0.018 0.008	0.004	0.045 0.025
43	0.125	0.250	0.012	0.050		0.185		0.004	0.055 Max.
44	0.265 Max.	0.265		0.050		0.188			0.050
45	0.175	0.250		0.050			0.030	0.004	0.060
46	0.125 0.135	0.250 0.260	0.010 0.013			0.130 Min.	0.008 0.016	0.003 0.005	0.040 0.050
47	0.195 0.175	0.275 0.240	0.019 0.016	0.050		0.300 Min.	0.030 0.015	0.006 0.003	0.055 0.040
48	0.135 0.125	0.260 0.250	0.015 0.010	0.050		0.122 0.112	0.013	0.005 0.003	0.045 0.030
49	0.250	0.250	0.015 Typ	0.050 Typ		0.150 Min.	0.030	.0035 .0055	0.055 Max.
TO84	0.150 0.120	0.260 0.240	0.019 0.010	0.055 0.045		0.070 Min.	0.035 0.005	0.006 0.003	0.070 0.030
TO85	0.185 0.160	0.275 0.240	0.019 0.010	0.055 0.045		0.070 Min.	0.035 0.005	0.006 0.003	0.070 0.030
TO86	0.260 0.240	0.275 0.240	0.019 0.010	0.055 0.045		0.070 Min.	0.035 0.005	0.006 0.003	0.070 0.030

*Package Type

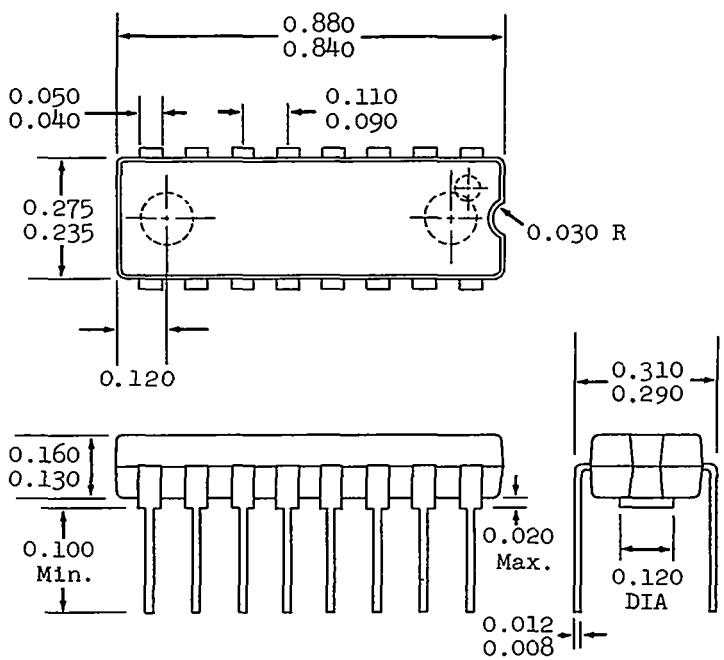


Type No.*	A	B	C	D	E	F	G	H	I	J	K
50	0.550	0.250	0.250	0.050	0.015	0.150 Min.		0.055 Max.	0.030	0.06 0.03	
51		0.240 0.230	0.240 0.230	0.052 0.048	0.018 0.016	0.210 Min.		0.070 Max.	0.010 Min.	0.004 0.003	0.015 0.005
52	0.750 0.730	0.255 0.245	0.260 0.240	0.050 0.005	0.014 0.015	0.250 0.230	0.038 0.012	0.063 0.051	0.027 0.006	0.006 0.004	
53	0.750	0.275 Max	0.250	0.050	0.015	0.460		0.060 Max.		0.005	
54		0.260 Max.	0.260 Max.	0.050	0.017	0.235 Min.		0.070 Max.	0.020	0.004	
55	0.760 0.740	0.265 0.245	0.265 0.240	0.055 0.045	0.018 0.015	0.260 0.235		0.065 0.055		0.006 0.004	
56	0.760 0.740	0.255 0.245	0.260 0.230	0.055 0.045	0.018 0.015	0.260 0.235	0.038 0.012	0.065 0.055	0.025 0.015	0.006 0.004	0.030 0.003
57	0.505 0.495	0.260 0.250	0.135 0.125	0.050	0.013 0.010	0.0185		0.045 0.030	0.013 Min.	0.005	0.020 0.018
58	0.290 0.380	0.255 0.245	0.130 0.120	0.050	0.010	0.080	0.025	0.040 0.030	0.012 Min.	0.003	
59		0.250	0.175					0.060	0.035	0.004	
60		0.500	0.500	0.100	0.020		0.050	0.125	0.050	0.010	
61		0.275 Max.	0.190 Max.	0.050		0.200 Min.		0.070 Max.		0.005	
62		0.275 0.255	0.170 0.150	0.050	0.017 0.013	0.249 0.187		0.060 0.040	0.017 Min.	0.006 0.004	
63		0.260 0.240	0.260 0.240	0.055 0.045	0.019 0.010	0.070 Min.		0.070 0.030	0.030 0.005	0.006 0.003	
64	0.780 0.720	0.260 0.240	0.260 0.240	0.055 0.045	0.019 0.015			0.060 0.045	0.029 0.015	0.006 0.003	
65	0.500	0.250	0.140	0.050	0.012	0.180		0.055 Max.			
66		0.260 0.240	0.260 0.240	0.050	0.019 0.015	0.250 Min.		0.060 0.050		0.006 0.003	
T089		0.290 0.240	0.150 0.120	0.055 0.045	0.019 0.010	0.070 Min.		0.070 0.030	0.035 0.005	0.006 0.003	
T090		0.290 0.240	0.185 0.160	0.055 0.045	0.019 0.010	0.070 Min.		0.070 0.030	0.035 0.005	0.006 0.003	
T091		0.290 0.240	0.260 0.240	0.055 0.045	0.019 0.010	0.070 Min.		0.070 0.030	0.035 0.005	0.006 0.003	

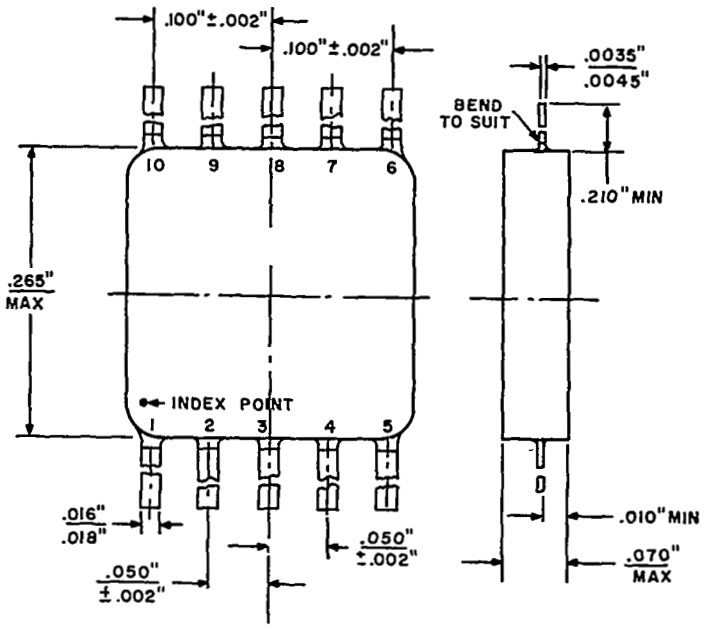
*Package Type



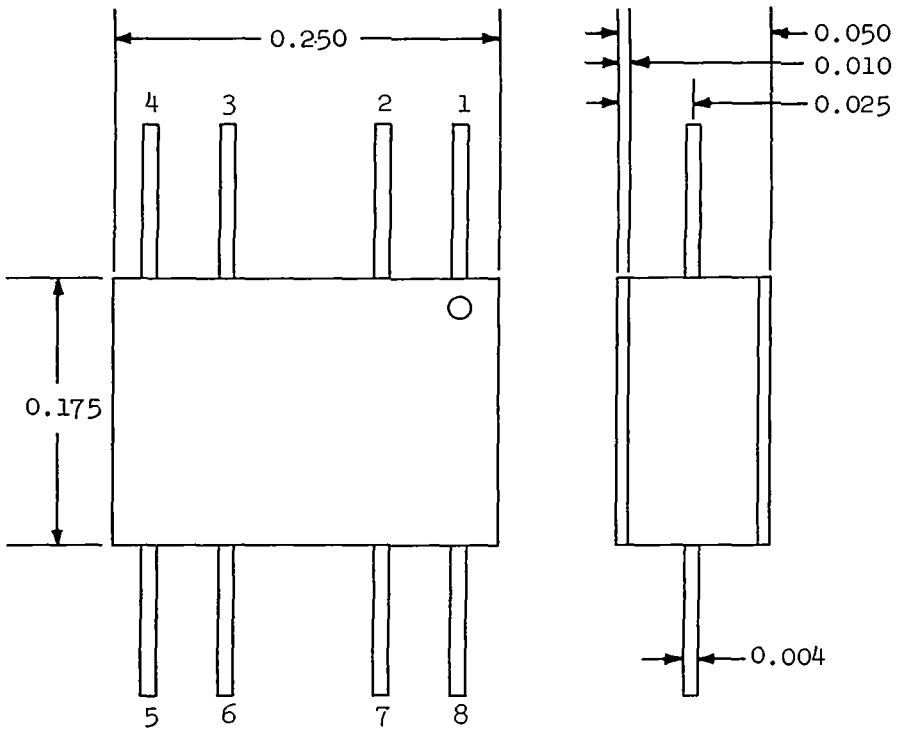
PACKAGE TYPE 67



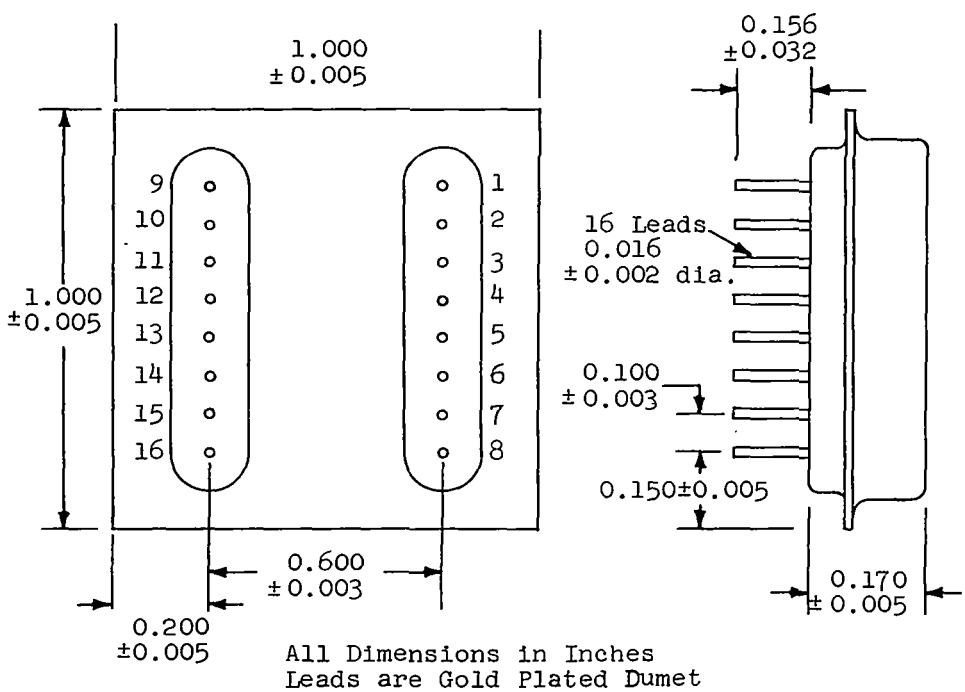
PACKAGE TYPE 68



PACKAGE TYPE 69

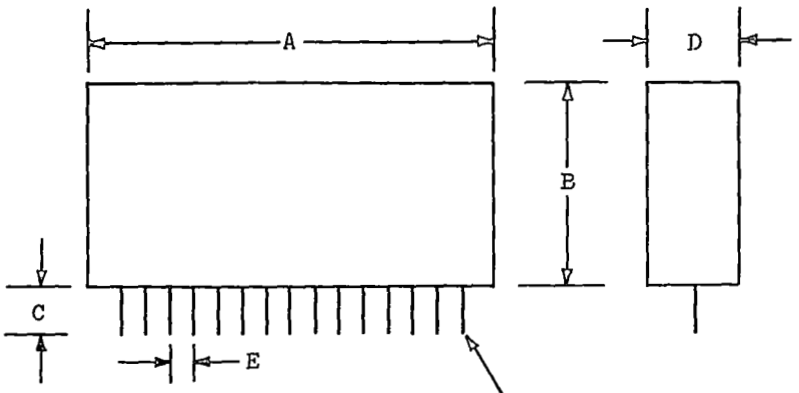


PACKAGE TYPE 70



All Dimensions in Inches
Leads are Gold Plated Dumet

PACKAGE TYPE 71



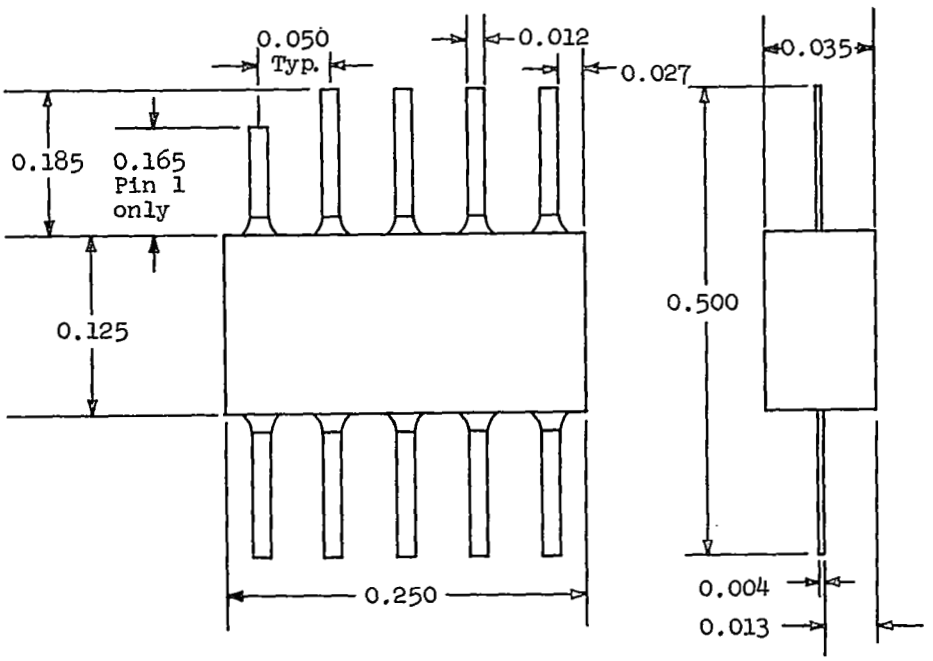
Package is Epoxy Encapsulant

F = Diameter of Leads

G = Number of Leads

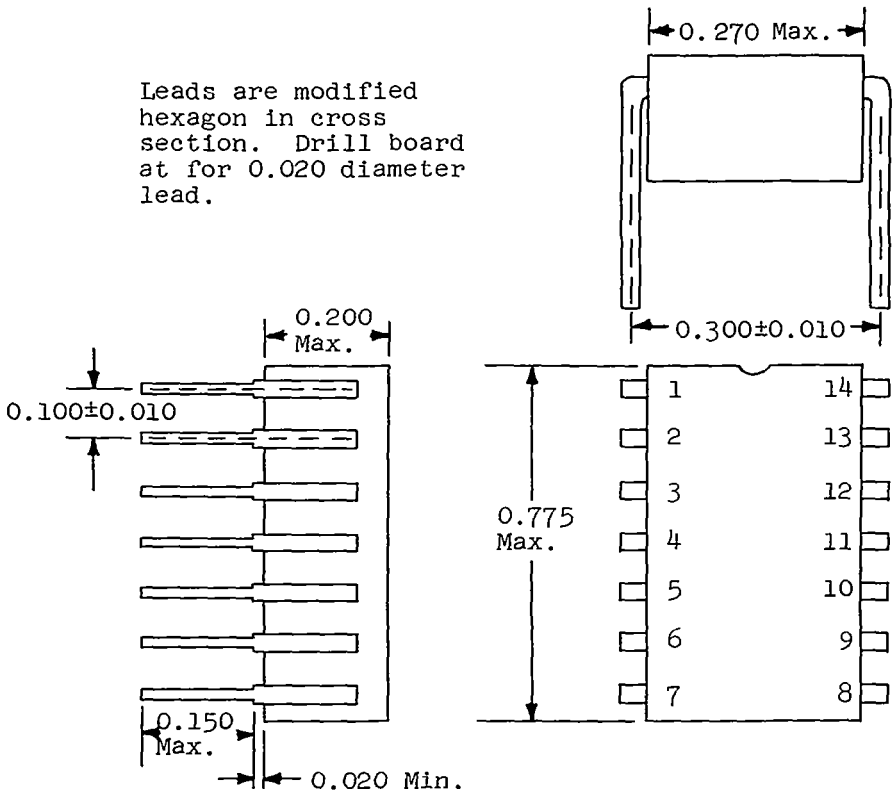
Type	A	B	C	D	E	F	G
72	0.804 Max.	0.604 Max.	0.300 Min.	0.85 Max.	0.050 Typ.	0.015	15
73	0.650 Max.	0.700 Max.	0.500 Max.	0.200 Max.			5

PACKAGE TYPE 72 AND 73

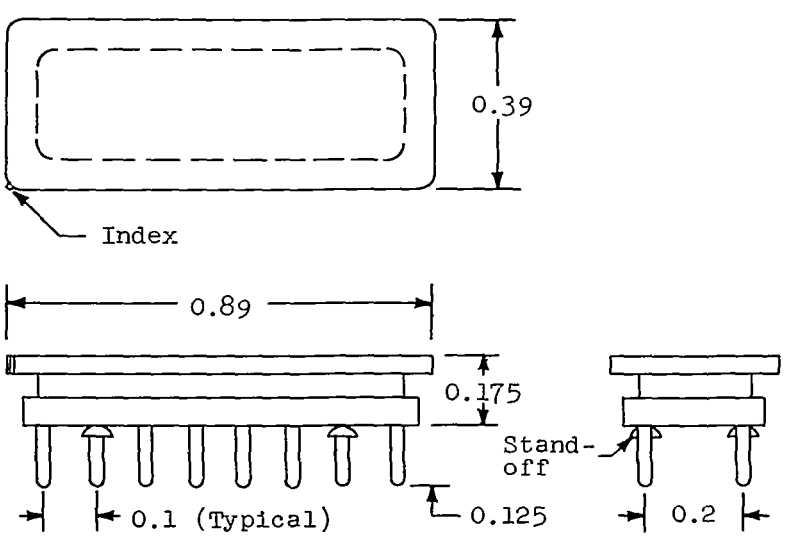


All dimensions in inches

PACKAGE TYPE 74



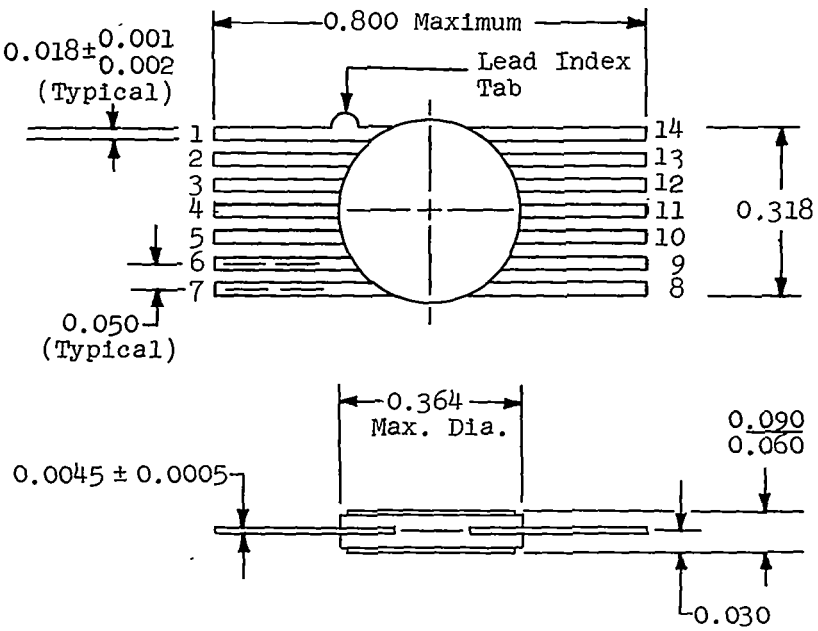
PACKAGE TO-116



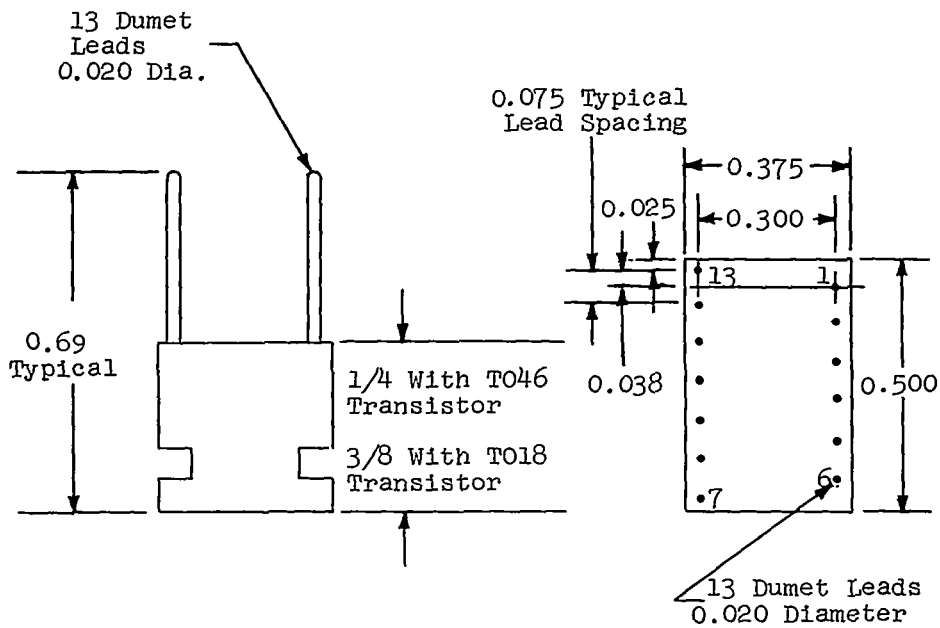
Notes:

1. All dimensions are nominal in inches.
2. All pins are 0.02 diameter.

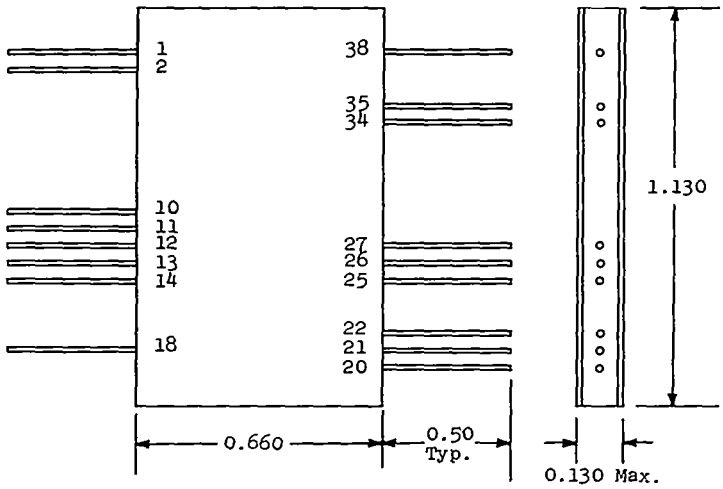
PACKAGE TYPE 76



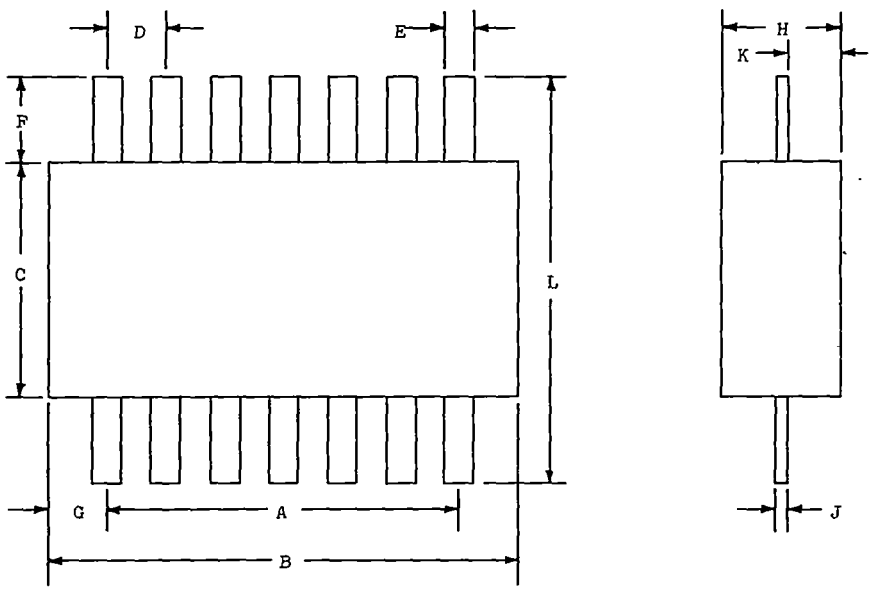
PACKAGE TYPE 77



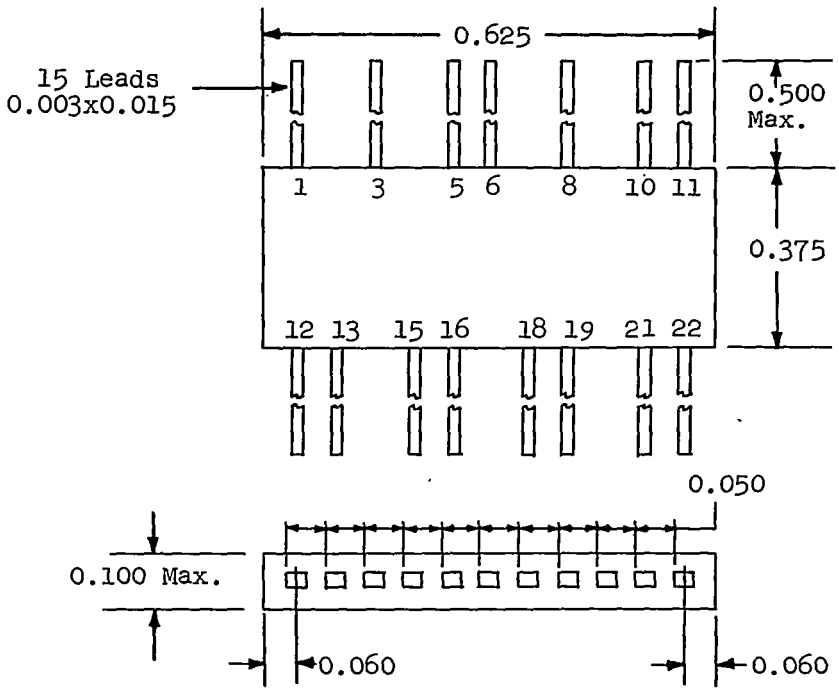
PACKAGE TYPE 78



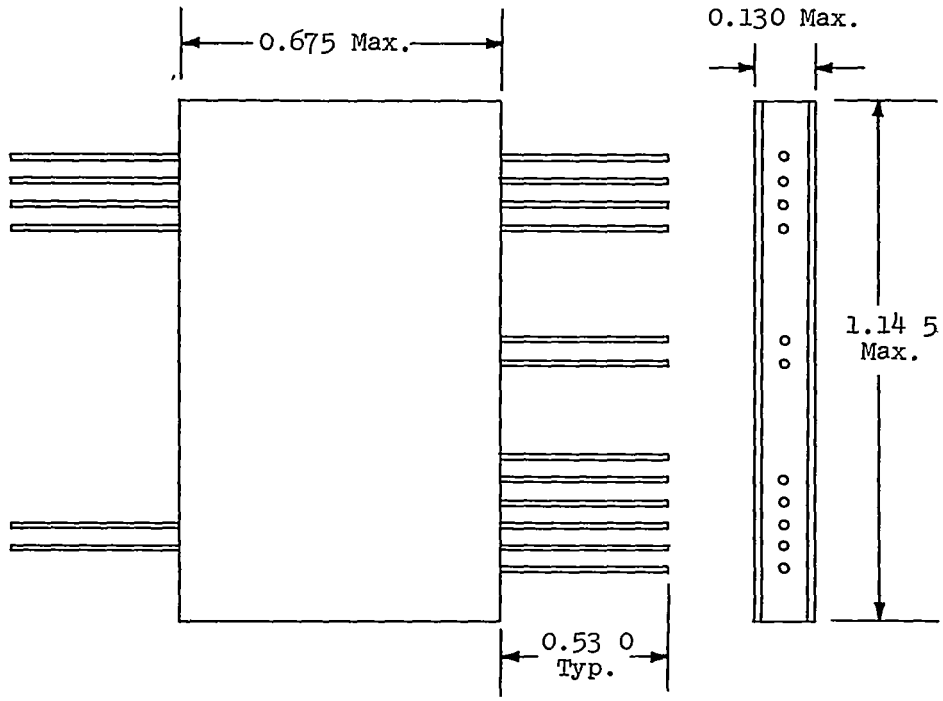
PACKAGE TYPE 79



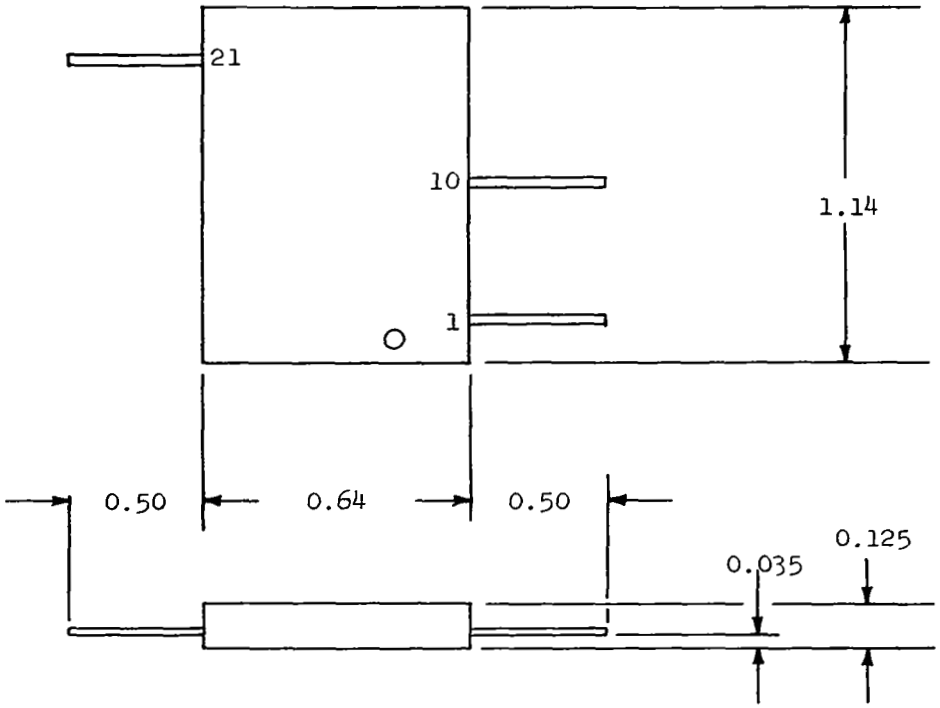
Type No.	A	B	C	D	E	F	G	H	J	K	L
80	0.300	0.360 0.380	0.140 0.160	0.047 0.053	0.014 0.016	0.125 Min.	0.035	0.065 Max.	0.0035 0.0045	0.015	
81		0.330 0.350	0.240 0.260	0.045 0.055	0.015 0.019	0.230 0.250	0.013 0.028	0.051 0.065	0.004 0.006	0.006 0.027	0.730 0.750
82		0.385 0.365	0.260 0.240	0.051 0.049	0.017 0.015	0.250 Min.		0.080 Max	0.006 0.004	0.012 0.004	
83		0.390 0.375	0.390 0.375	0.55 0.45	0.017 0.015	0.500 Min.	0.038	0.075 Max.			
T087	0.410 0.360	0.275 0.240	0.055 0.045	0.019 0.010	0.070 Min.		0.070 0.030	0.006 0.003	0.035 0.005		
T088	0.350 0.330	0.260 0.240	0.055 0.045	0.019 0.010	0.070 Min.		0.070 0.030	0.006 0.003	0.035 0.005		
T095	0.329 0.308	0.260 0.240	0.055 0.045	0.019 0.010	0.070 Min.		0.070 0.030	0.006 0.003	0.035 0.005		
*Package Type											



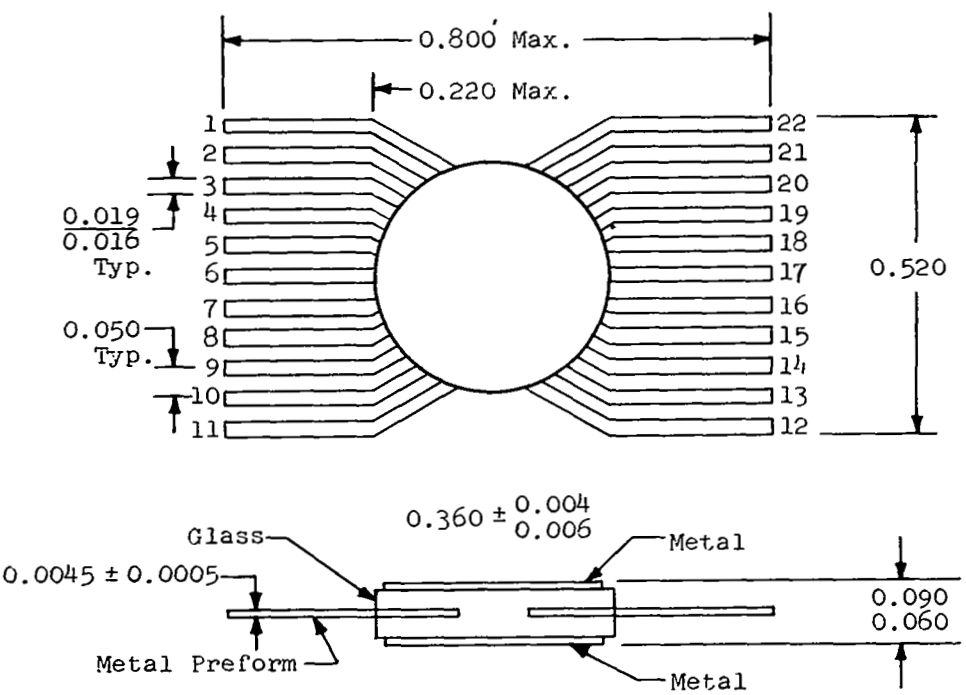
PACKAGE TYPE 85



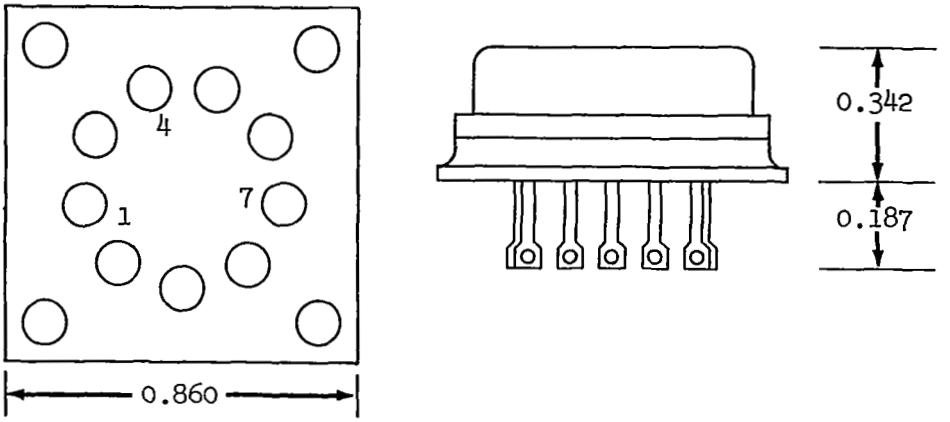
PACKAGE TYPE 86



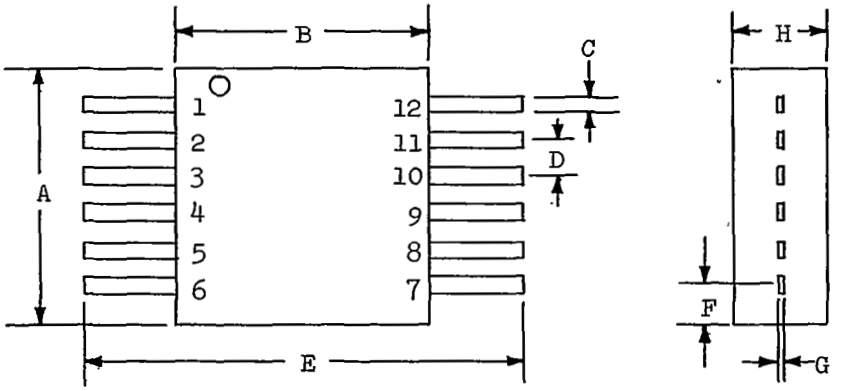
PACKAGE TYPE 87



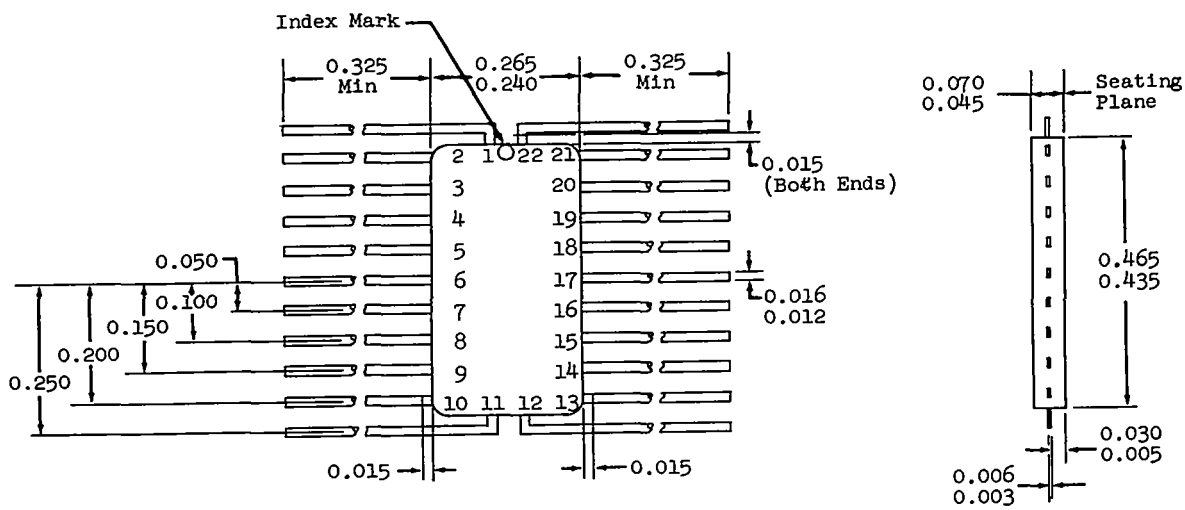
PACKAGE TYPE 88



PACKAGE TYPE 89



Type No.	A	B	C	D	E	F	G	H
90	0.375	0.375	0.015	0.050		0.062	0.003	0.085 Max.
91	0.375	0.250	0.015	0.050	0.690		0.005	0.060 Max.
92	0.406 0.375	0.406 0.375	0.017 0.013	0.055 0.045			0.006 0.004	0.055 Max.
93	0.390 Max.	0.390 Max.	0.015	0.050		0.062	0.003	0.100 Max.



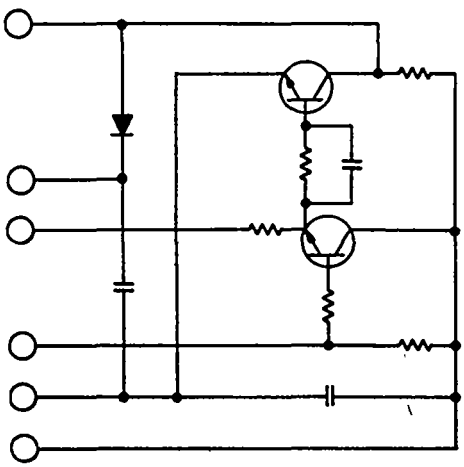
PACKAGE TYPE 97

2.5 Schematic Drawings

Schematic drawings of microelectronic devices are presented on the following pages. Each drawing is referred to -- by schematic number -- in the Catalog of Devices. In many instances, the circuit configuration shown is only a basic representation of the actual circuit. The descriptive terms following the generic name in the Circuit Description column of the Catalog of Devices must be applied to modify as necessary the circuit shown. The Circuit Description column may indicate a need for modification in the following characteristics:

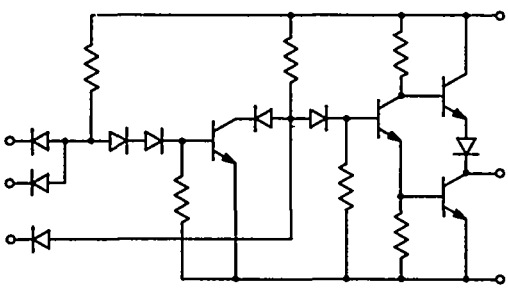
- Multiple circuit (dual, triple, etc.)
- Number of inputs
- Expandable nodes

Where appropriate, additional differences between the configuration shown and the actual configuration are indicated by a letter code in the Schematic Number column in the Catalog of Devices. These codes are explained in Table 6.

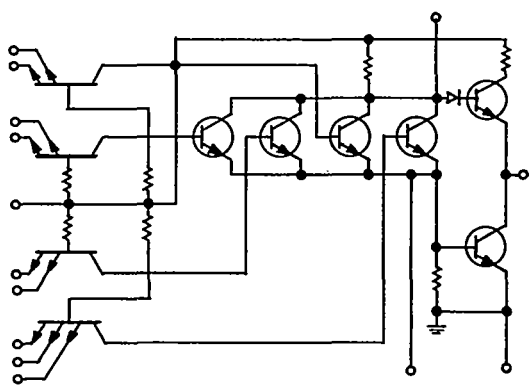


101

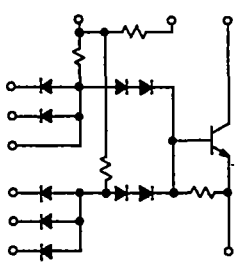
104



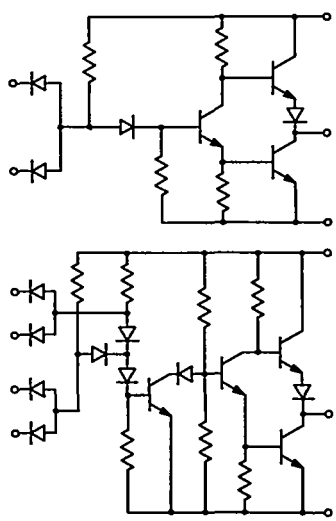
102



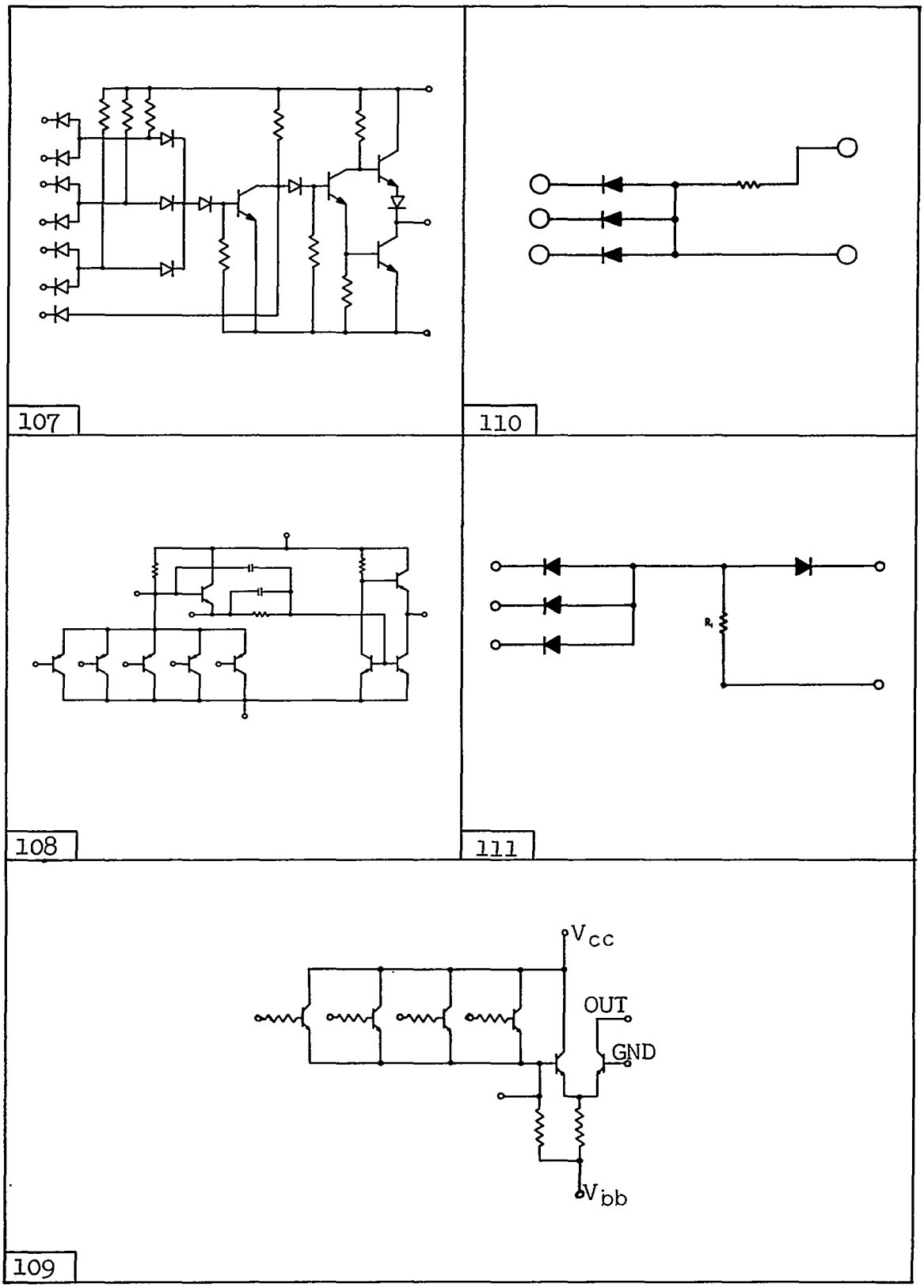
105

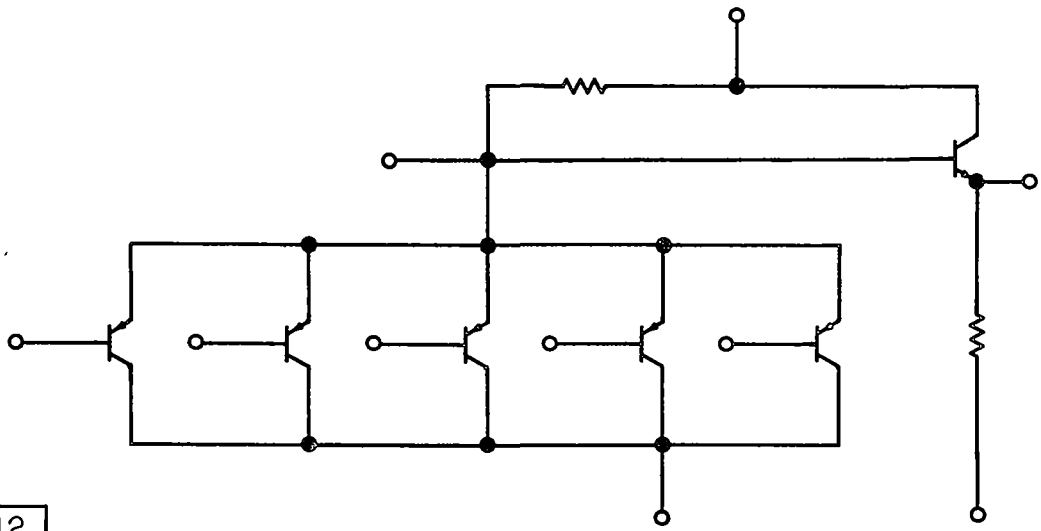


103

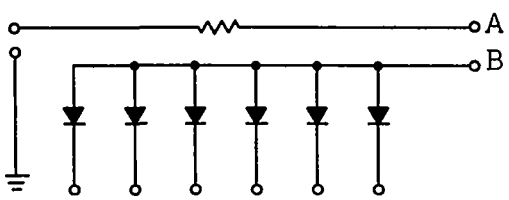


106

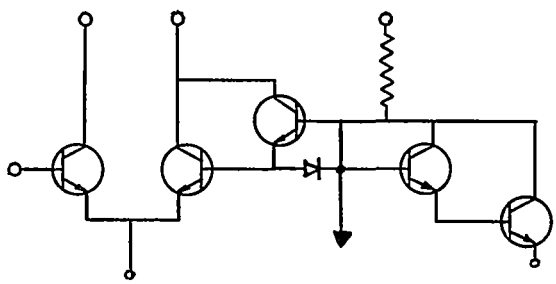

107
110
108
111
V_{cc}
OUT
GND
V_{bb}
109



112

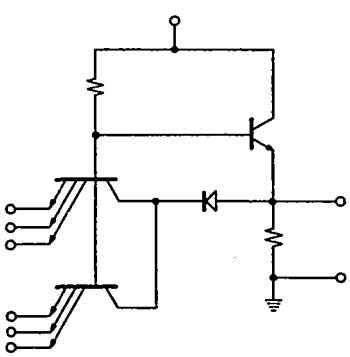


113

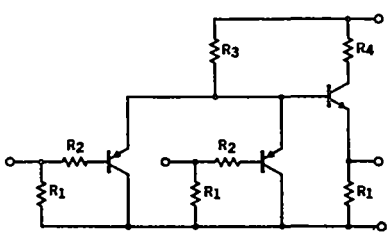


Schematic for one stage of D/A Converter

115



114



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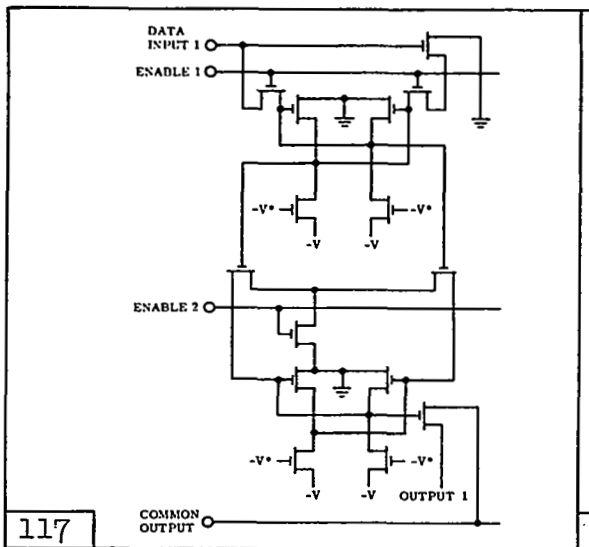

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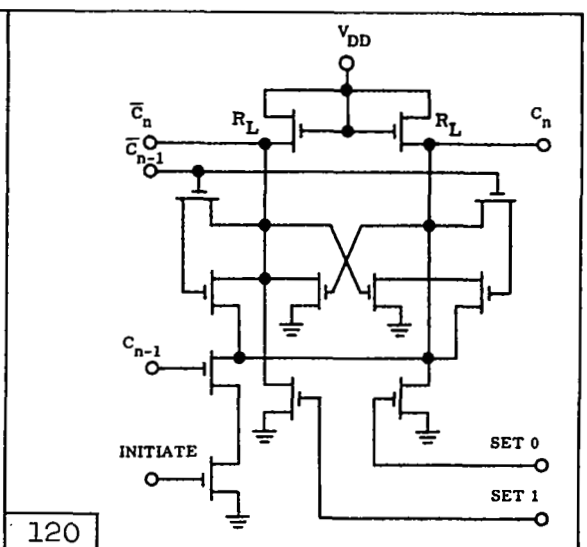

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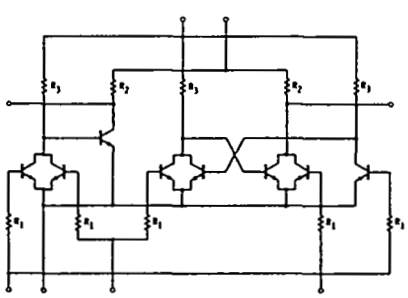

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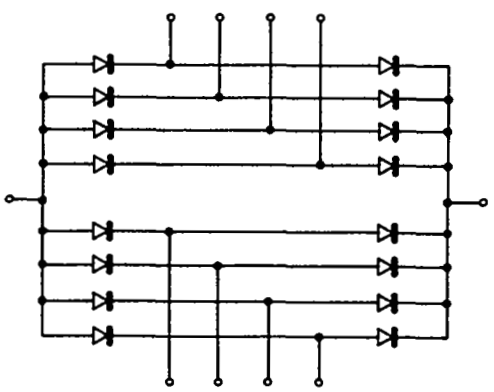

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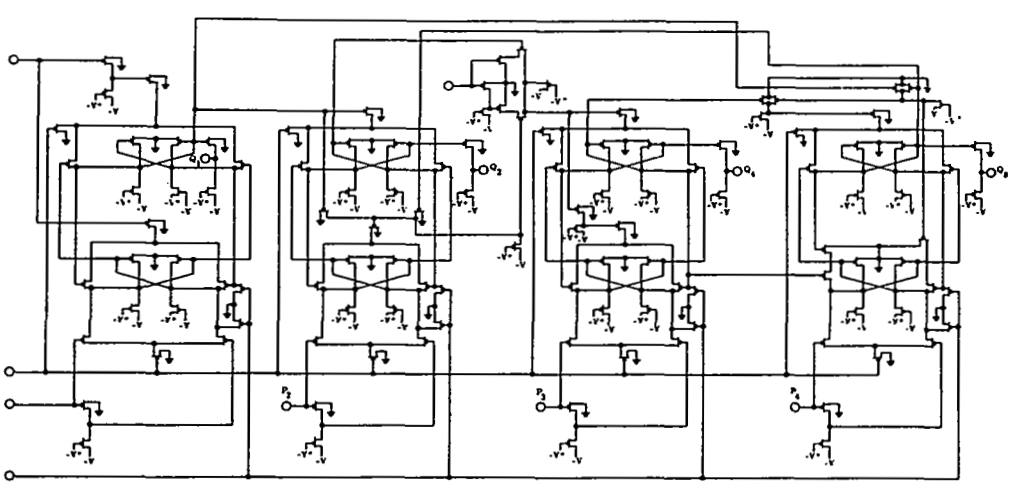

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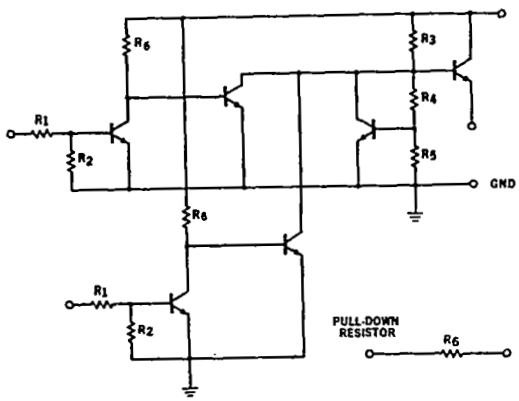

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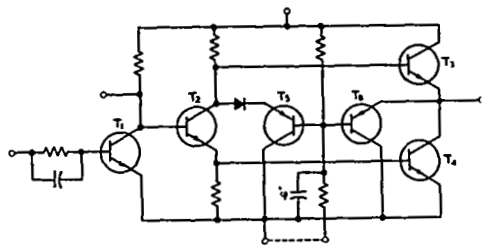

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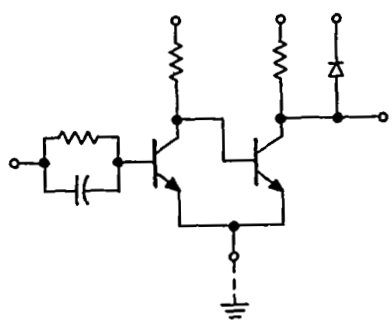

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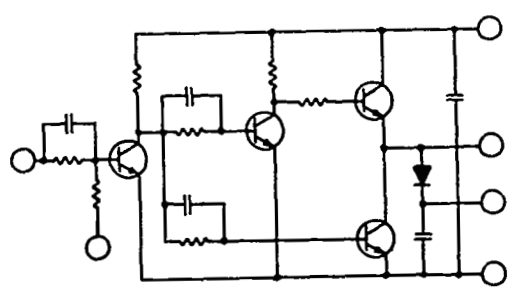

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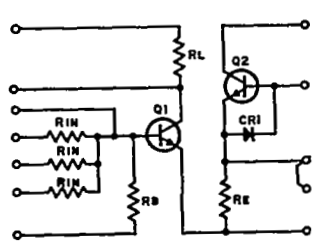

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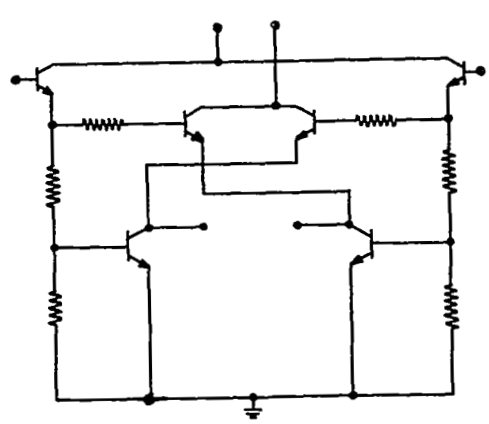

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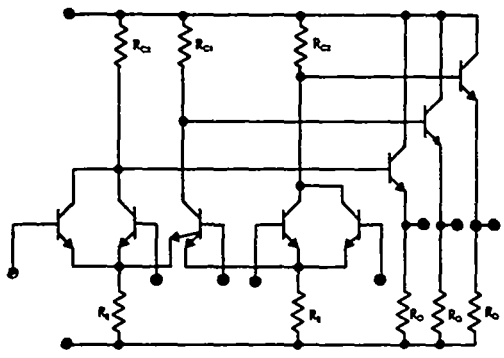

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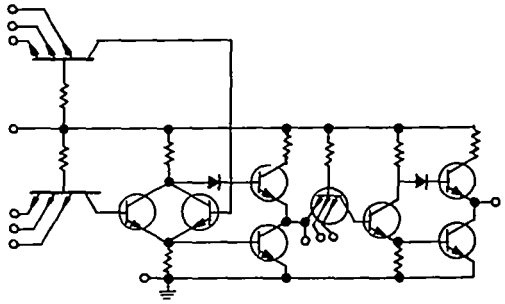

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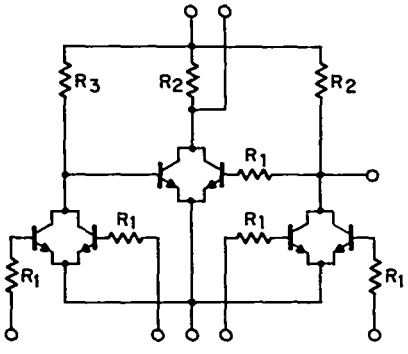

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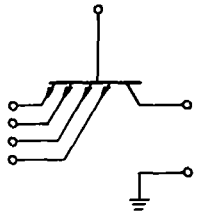

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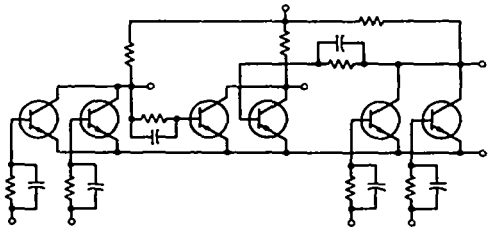

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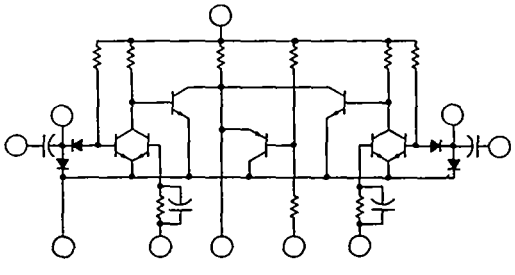

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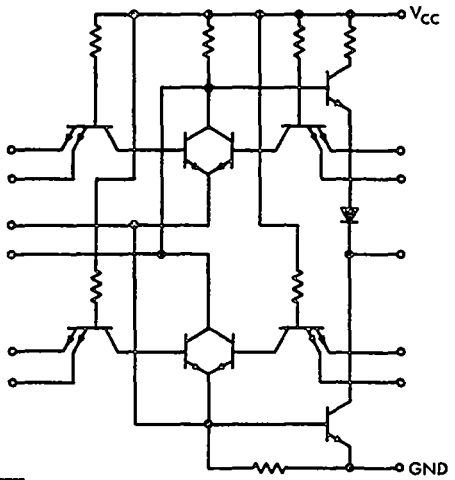

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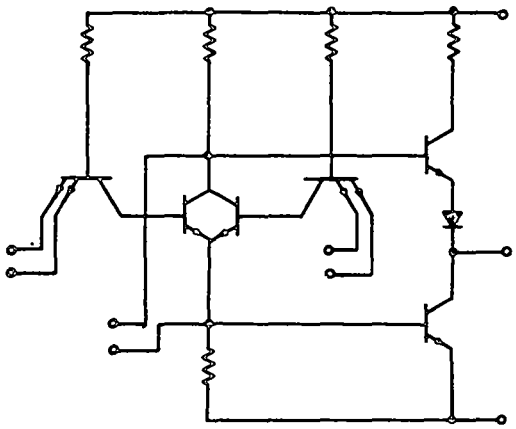

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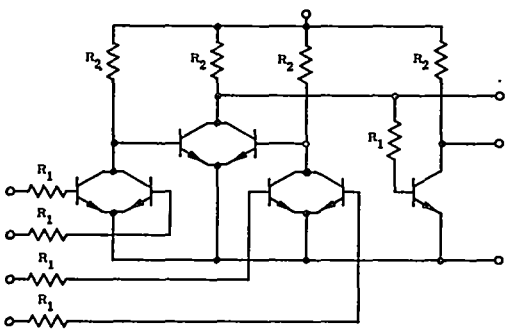

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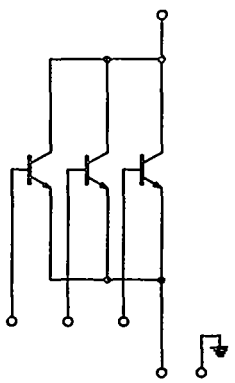

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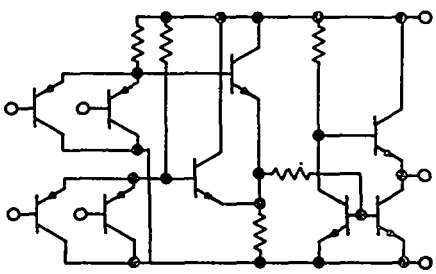

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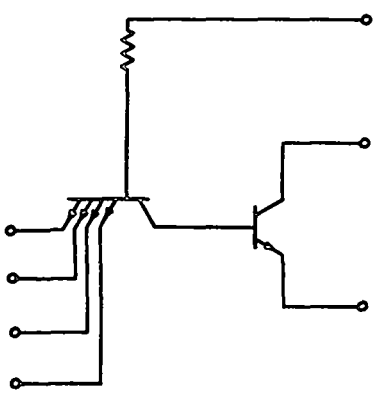

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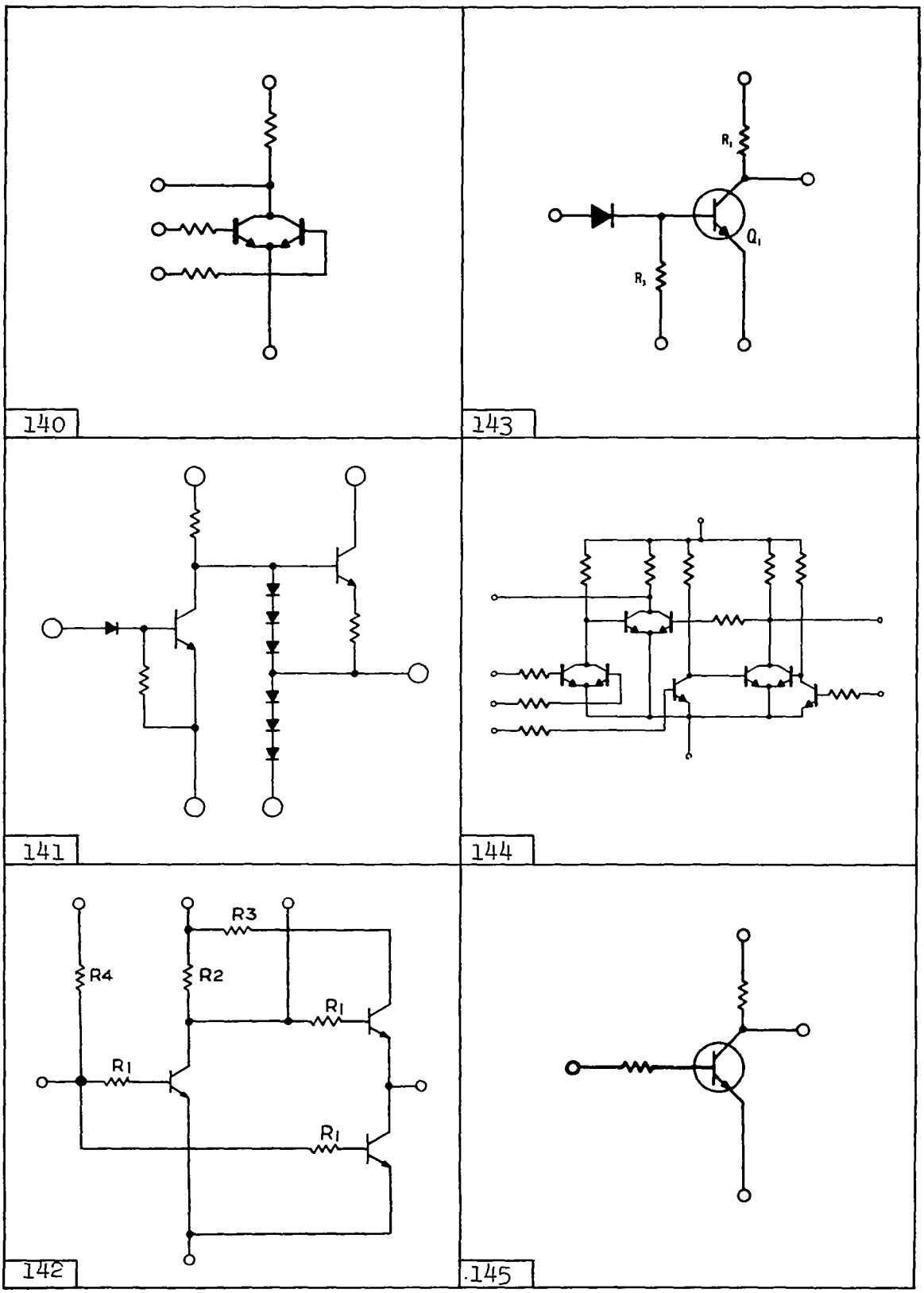
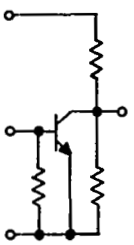

140
143
R1
Q1
R3
141
144
R3
R4
R2
R1
R1
R1
142
145

146



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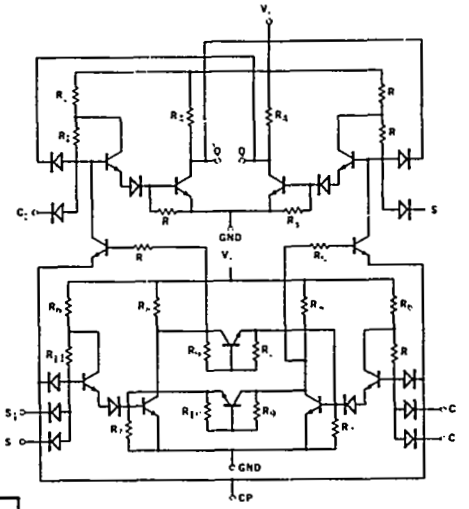

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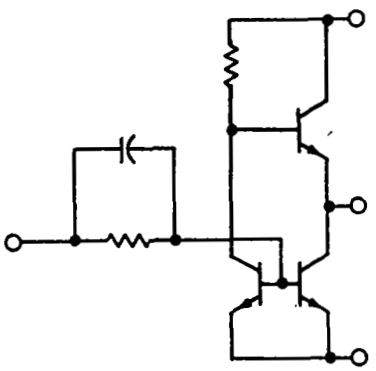

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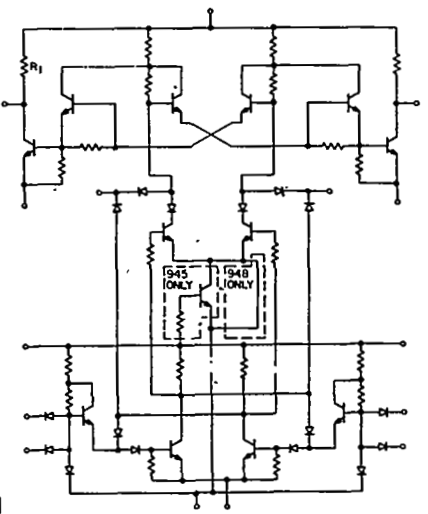

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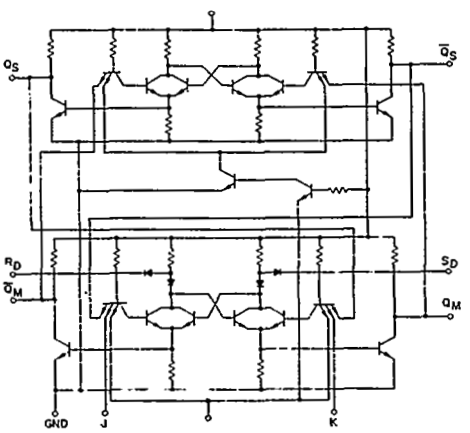

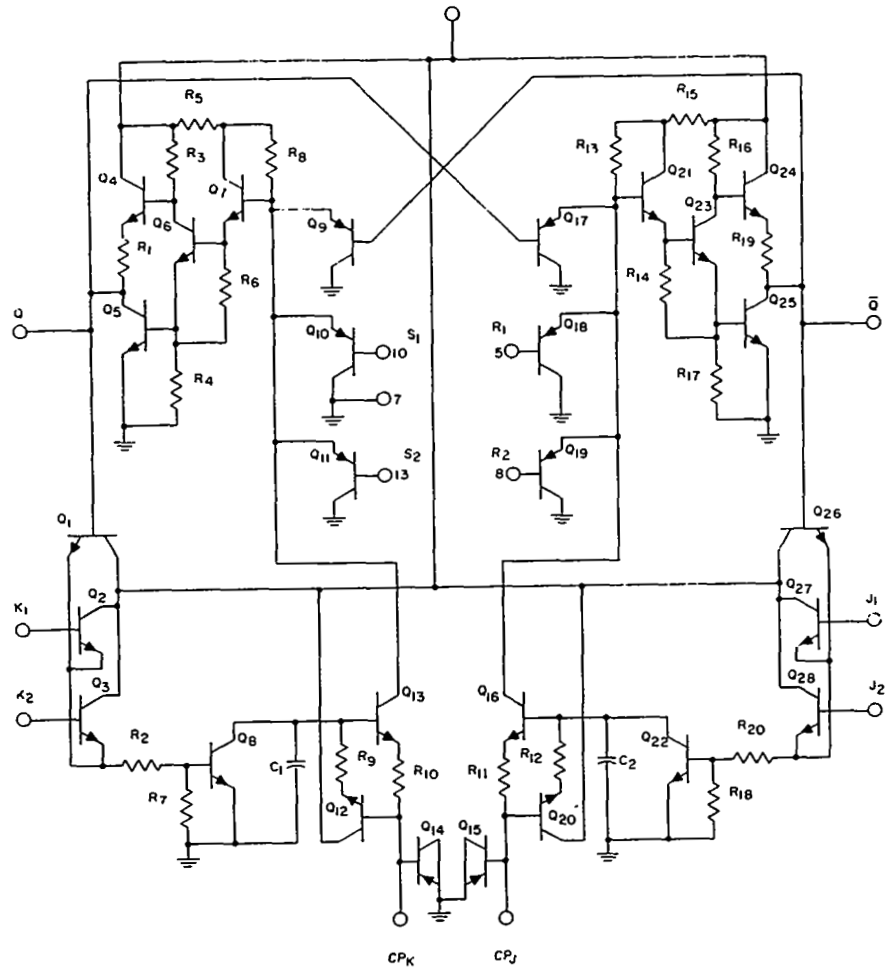
R5
R3
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R15
R13
R16
Q4
Q7
Q21
Q24
Q6
Q9
Q23
Q17
R1
R19
R6
R14
Q
Q5
Q25
Q̄
Q10
S1
10
R1
5
Q18
R17
7
R4
Q11
S2
R2
8
Q19
13
Q1
Q26
Q2
Q27
J1
K1
Q3
Q28
J2
K2
Q13
Q16
R2
Q8
C1
R9
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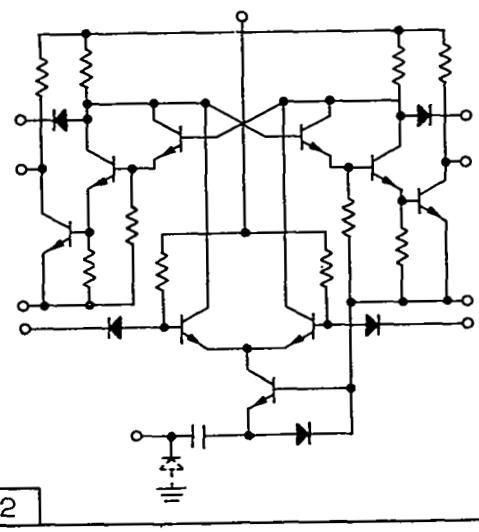
CPK
CPJ

151



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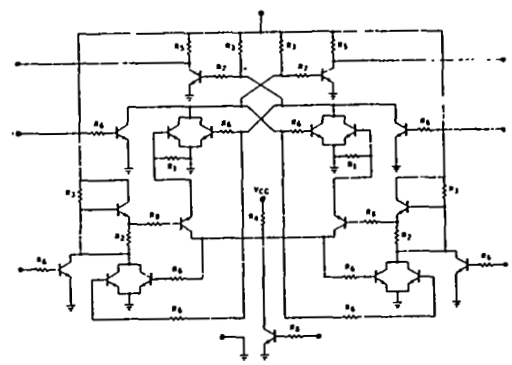

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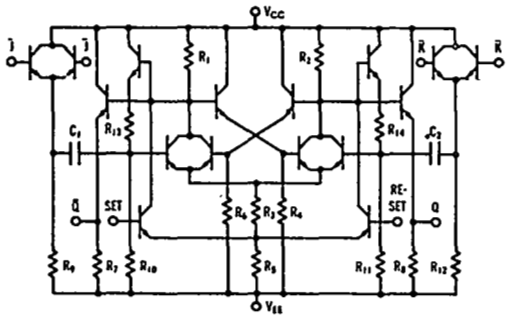

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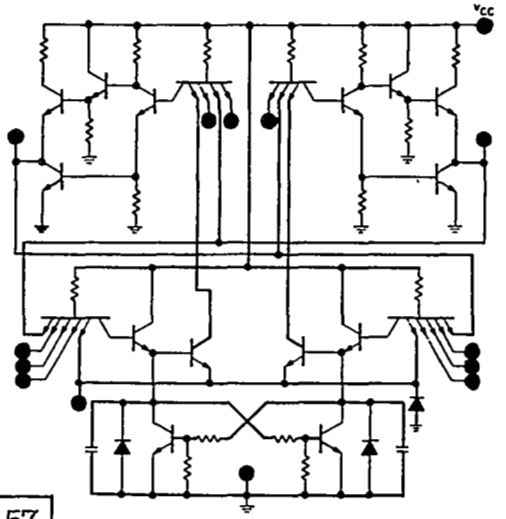

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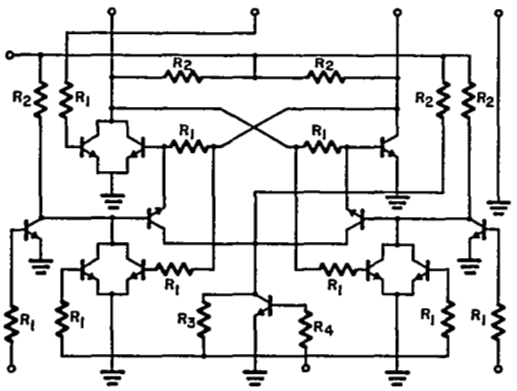

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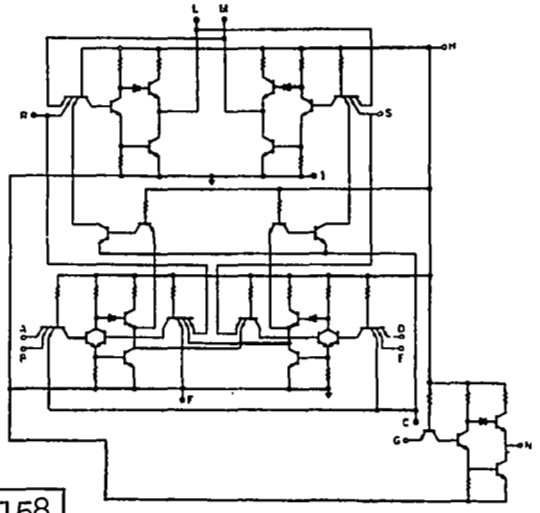

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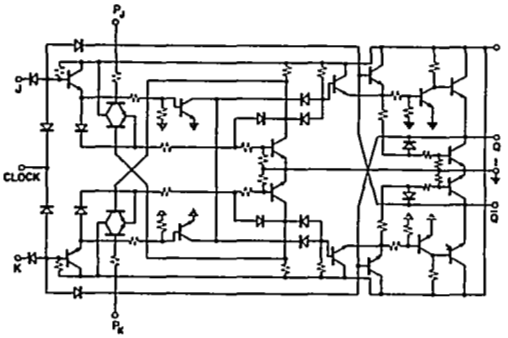

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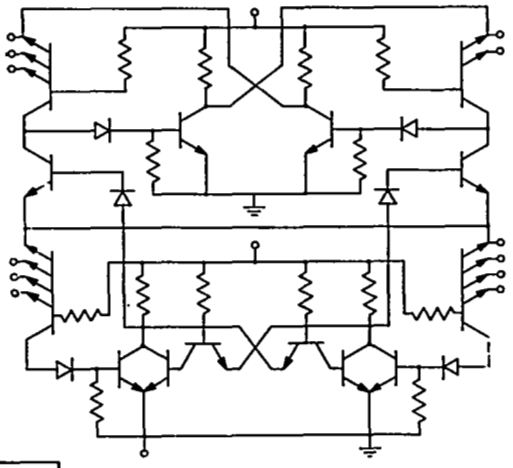

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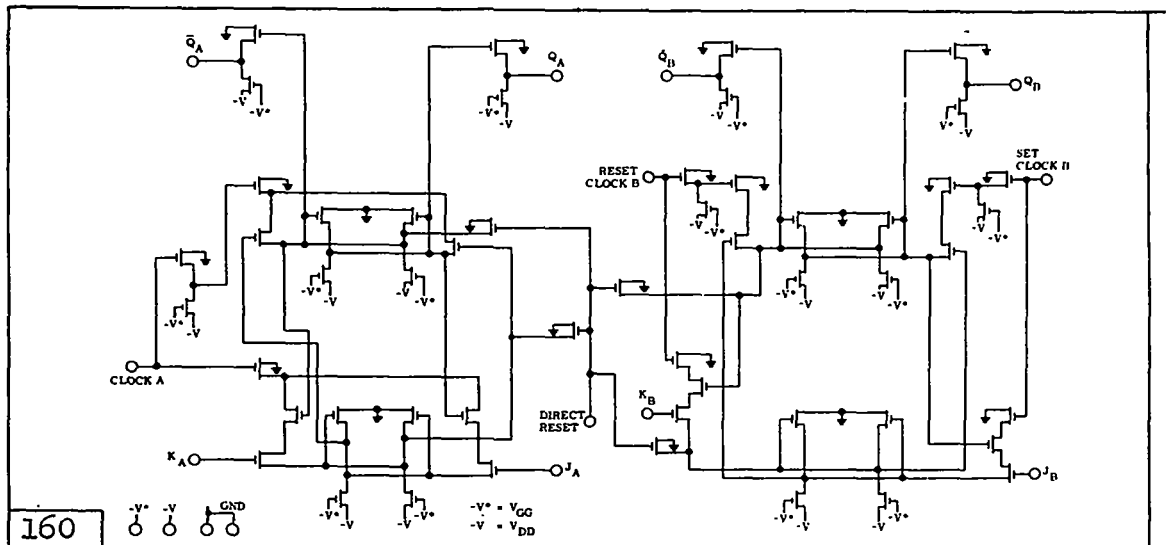

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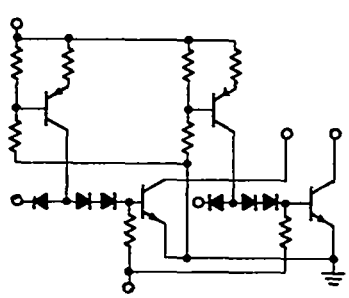

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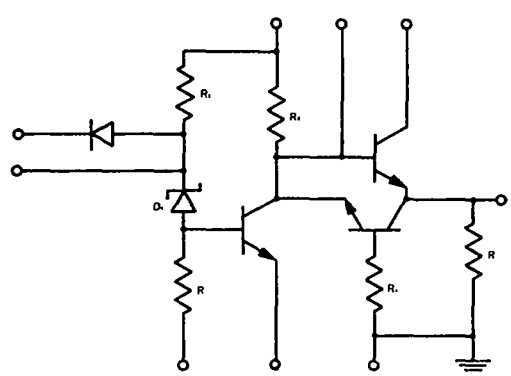

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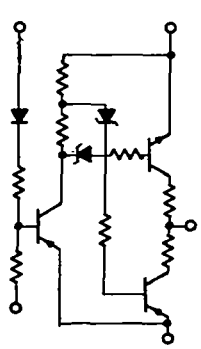

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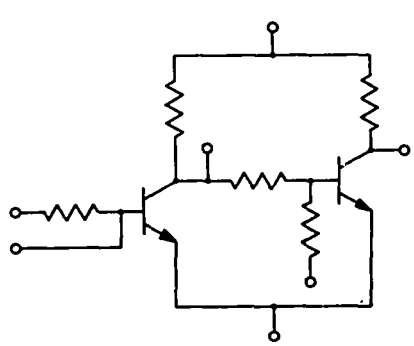

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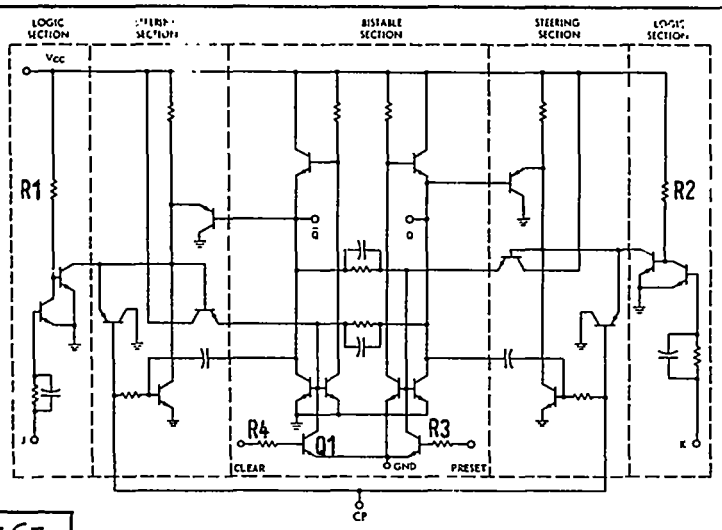
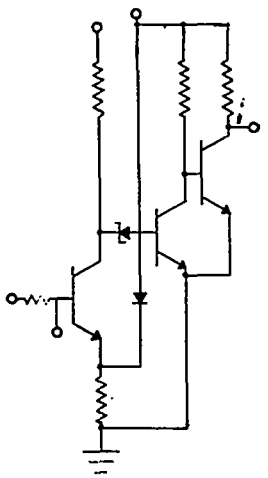


Note:

TI-SN530,SN7300, SN7301 have capacitors in parallel with R1, R2, R3, R4 (SN7301 only) and R1, R2, are not intraconnected to V_{CC}

165



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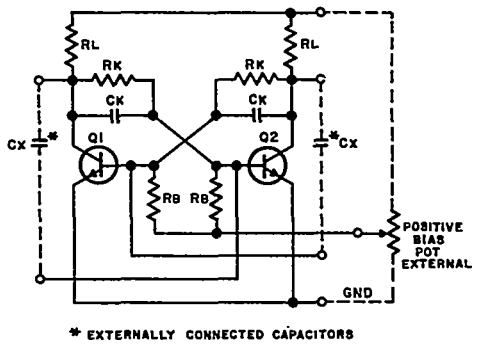

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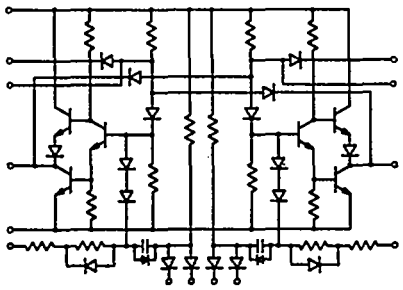

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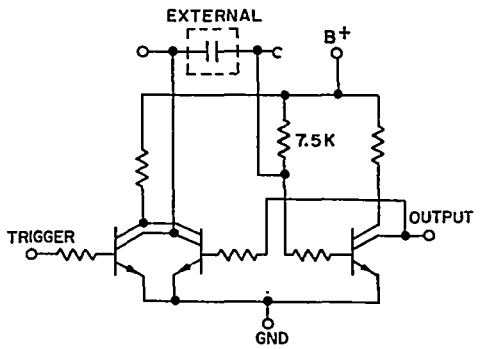

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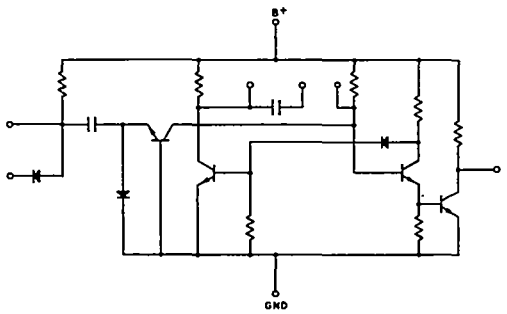

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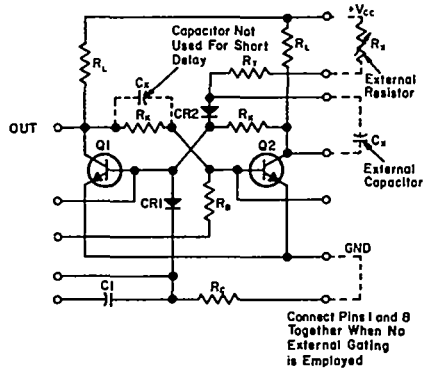

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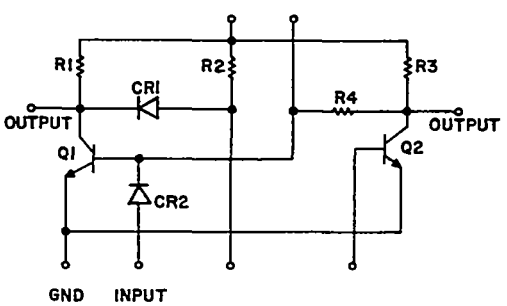

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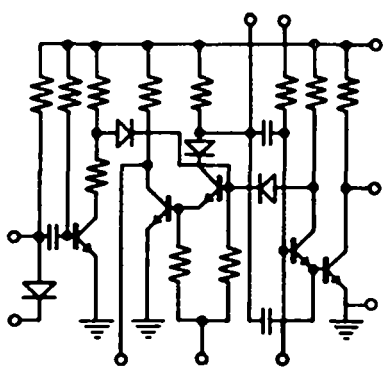

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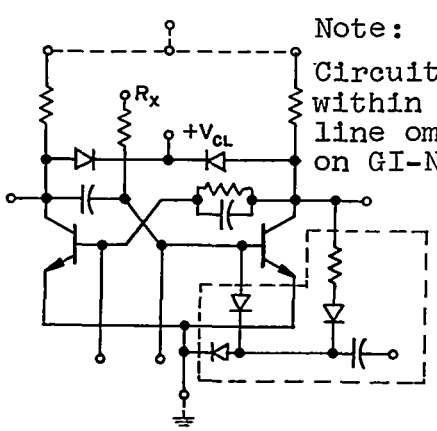

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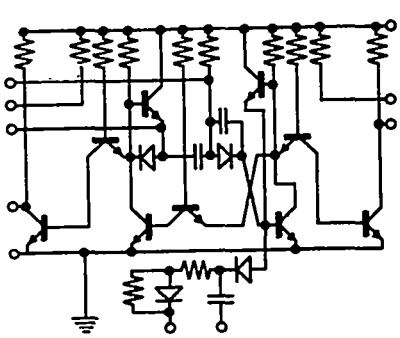

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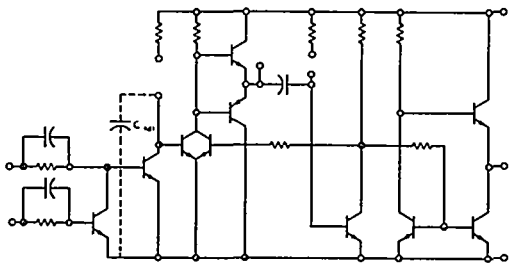

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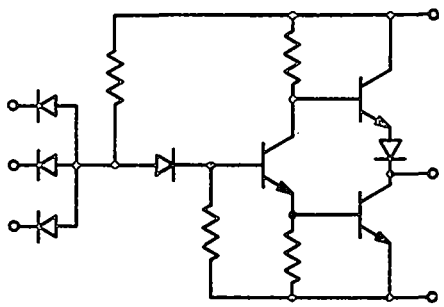

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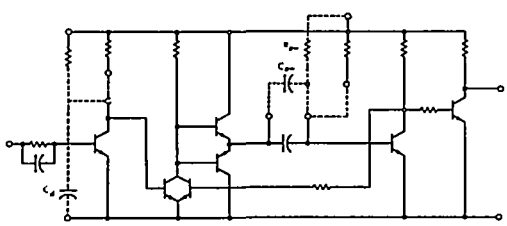
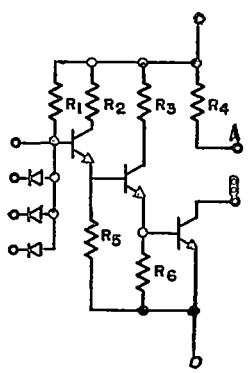


177



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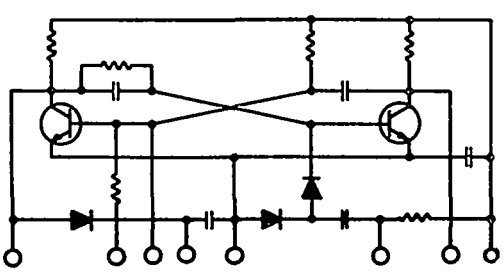

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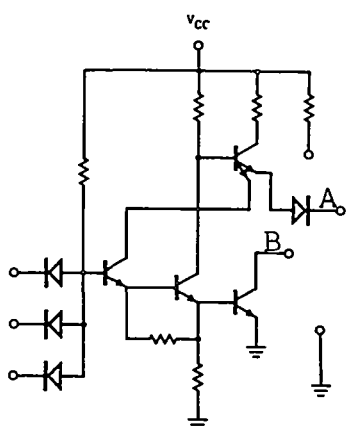

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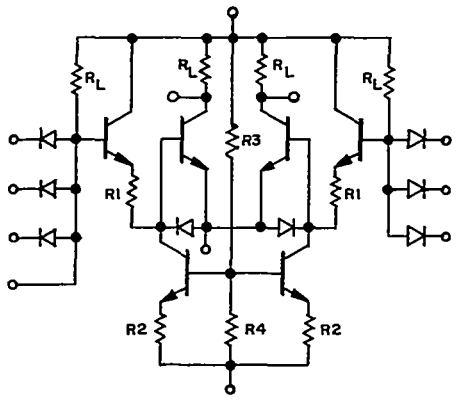

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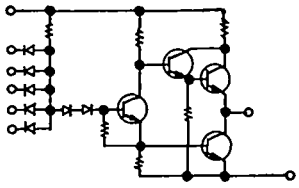

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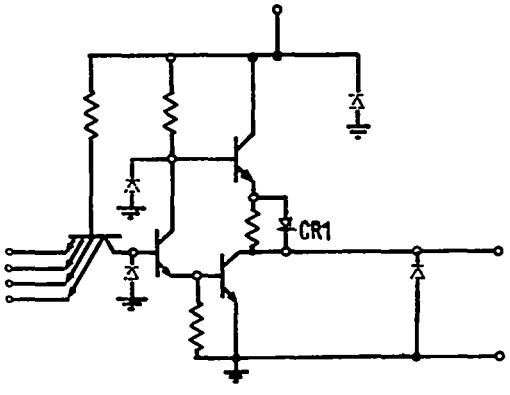

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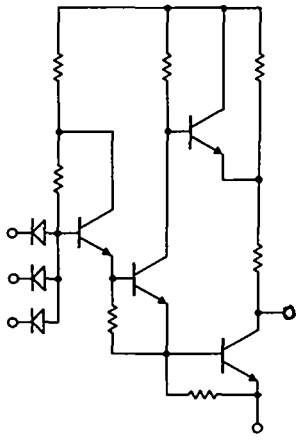

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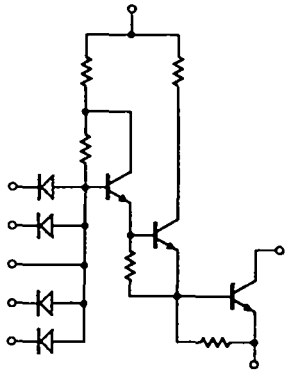

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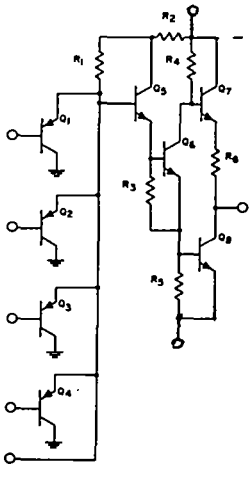

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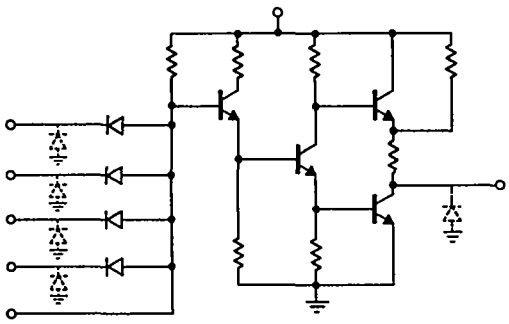

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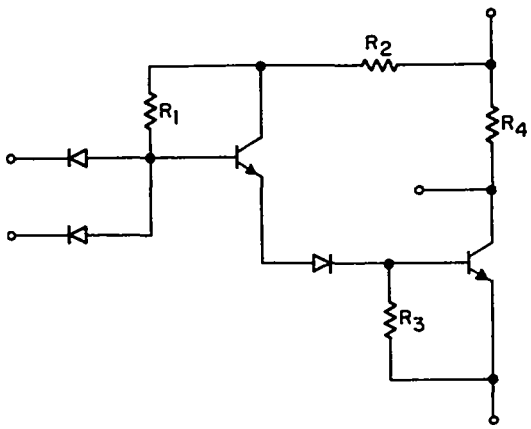

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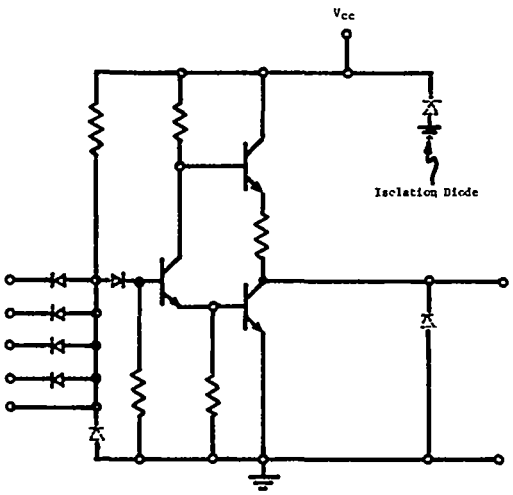

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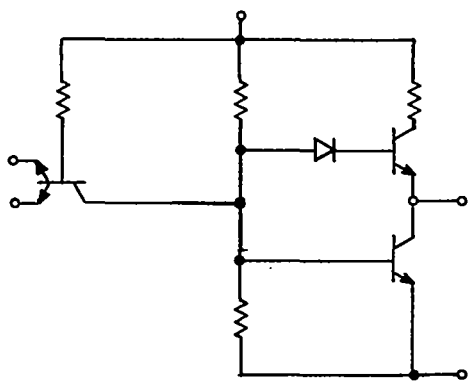

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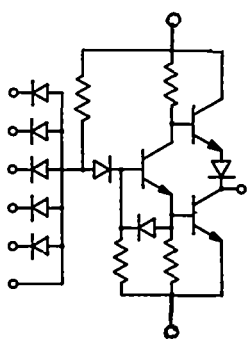

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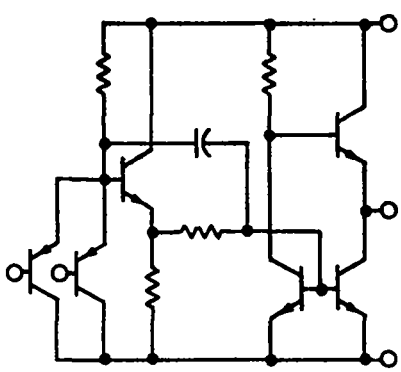

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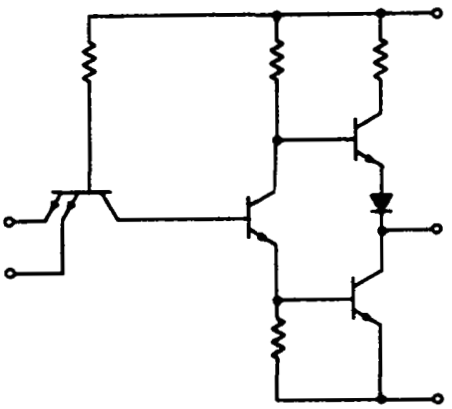

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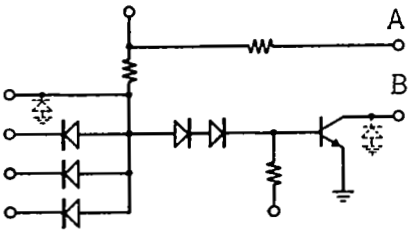

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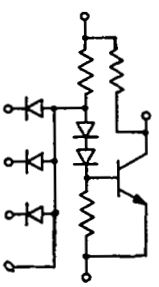

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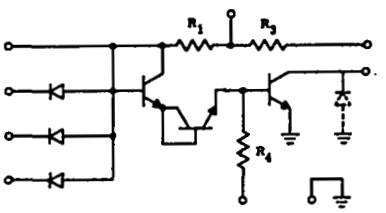

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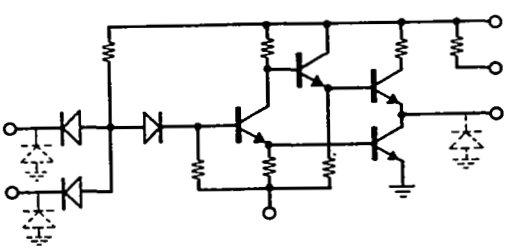

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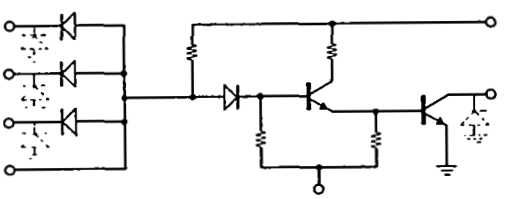

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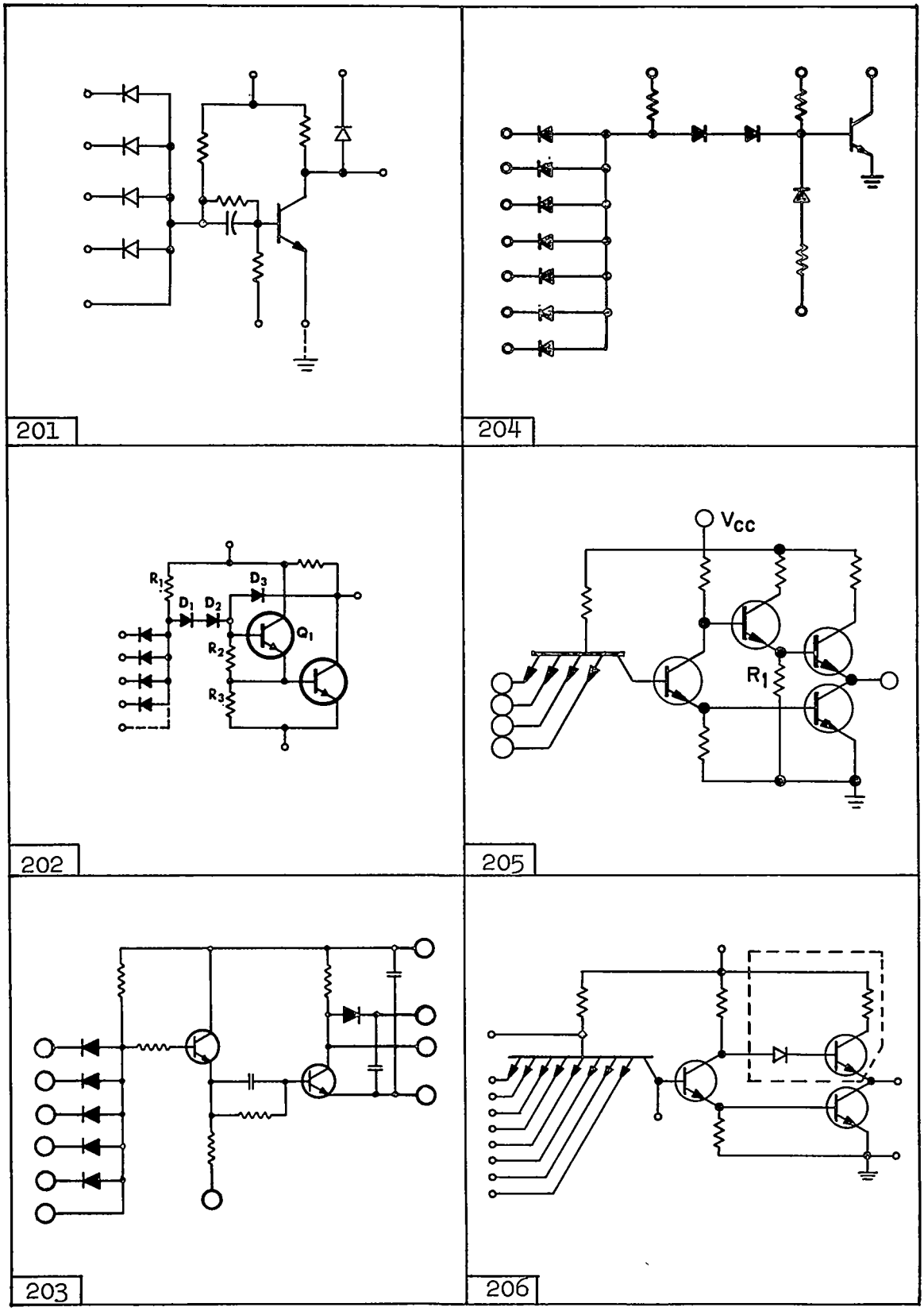
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206
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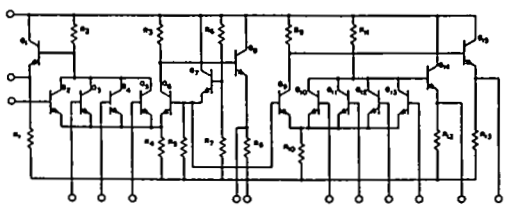
D1
D2
D3
Q1
R2
R3
Vcc
R1

207

210



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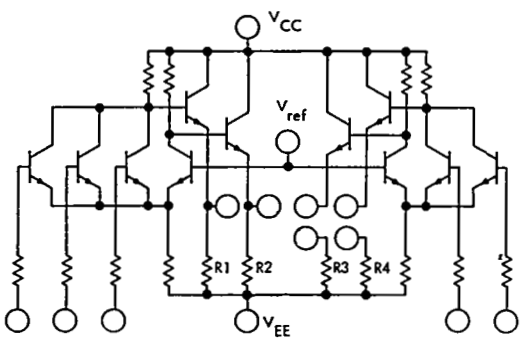

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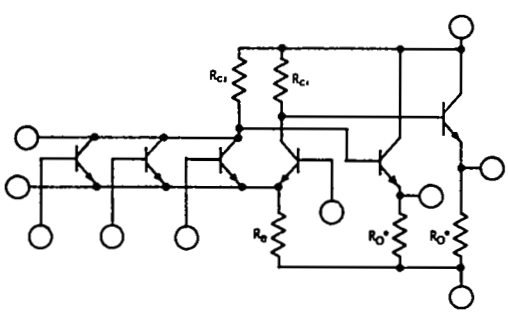

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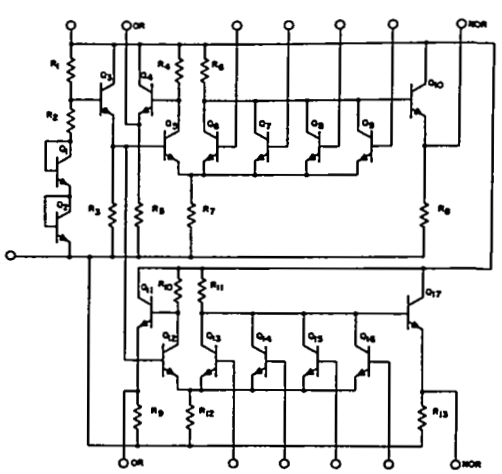

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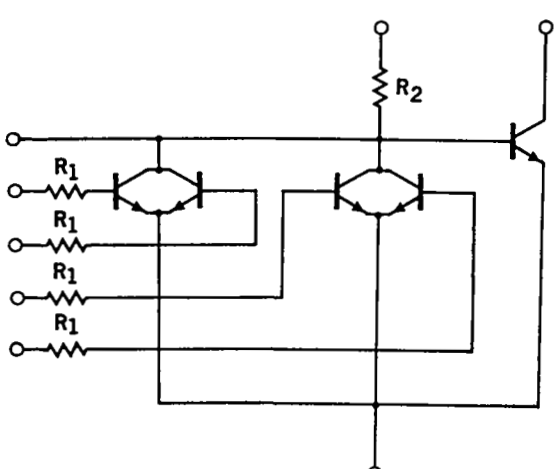

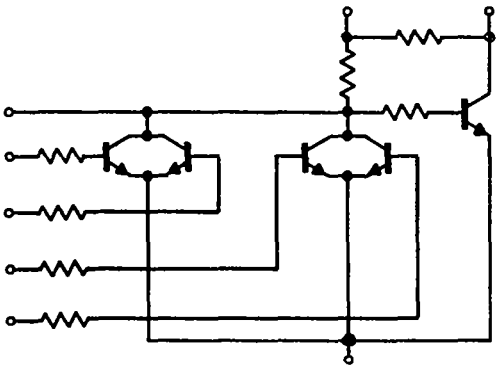

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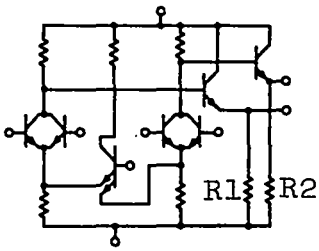
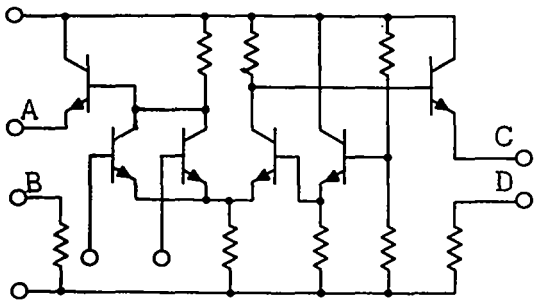


Note: Circuit shown is dual with common reference source

216



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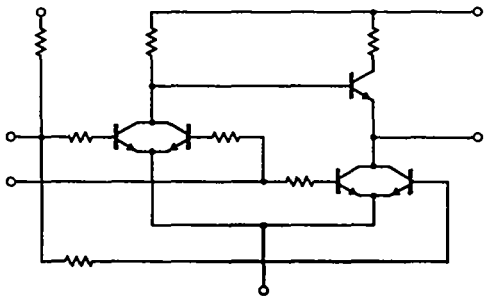

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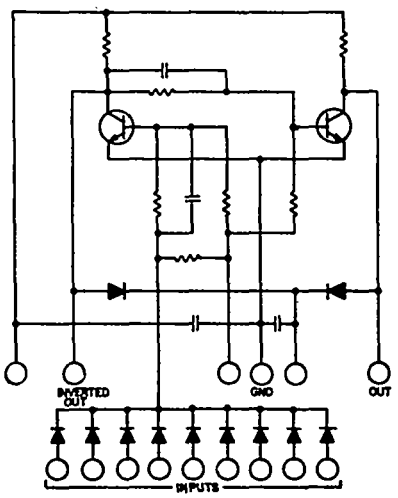

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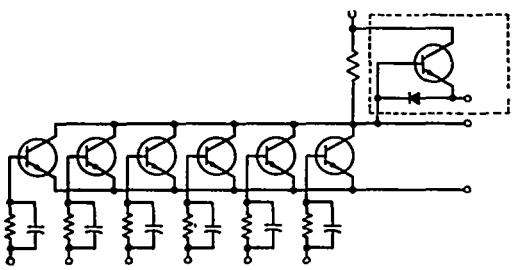
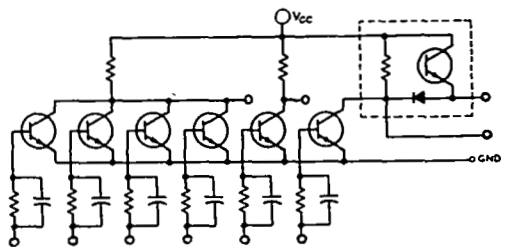


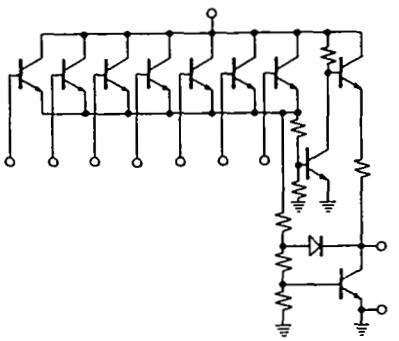
Note; Circuitry within dashed line applies only to TI-SN513, SN5162 and SPRG-US-103,US0113

218



Note: Circuitry within dashed line applies only to SPRG-US0115

219



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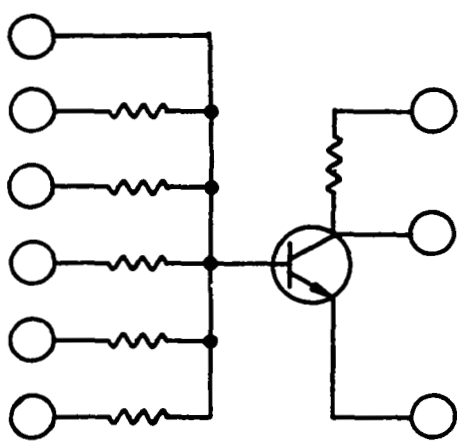

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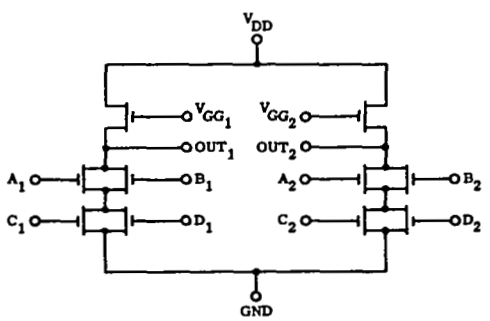

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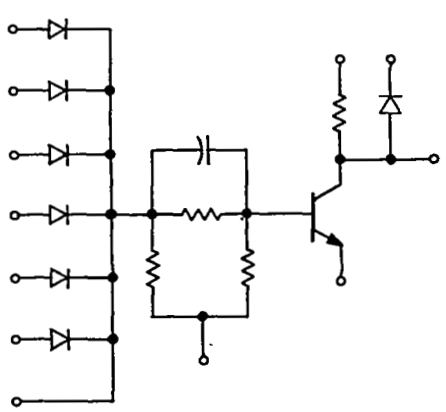

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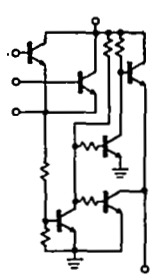

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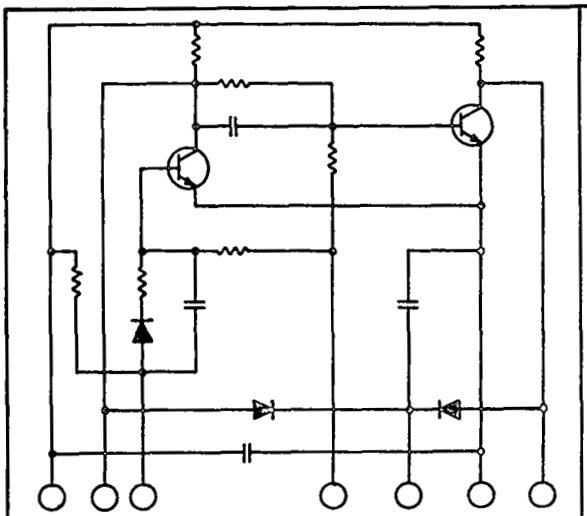

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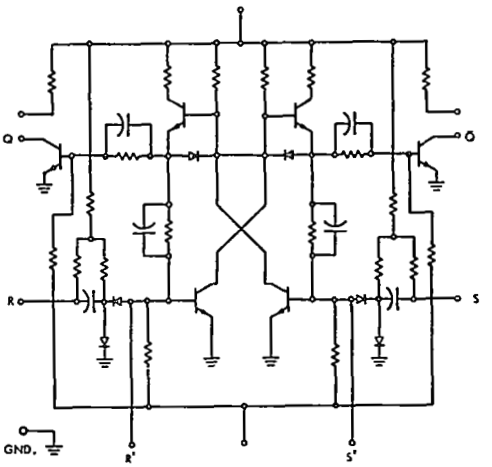

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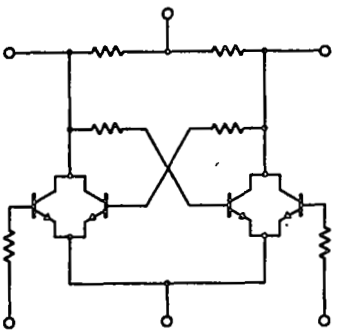

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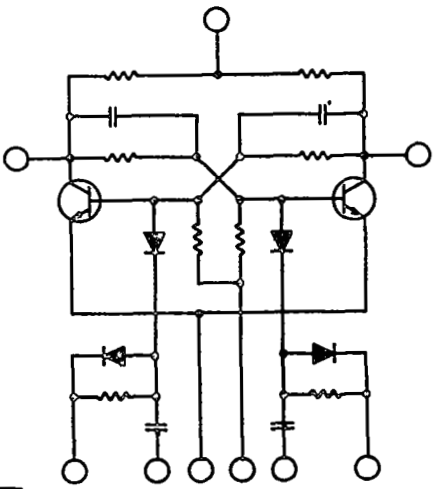

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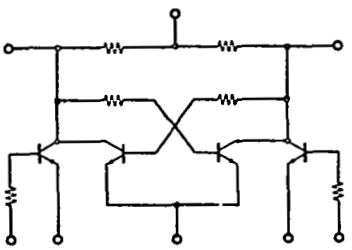

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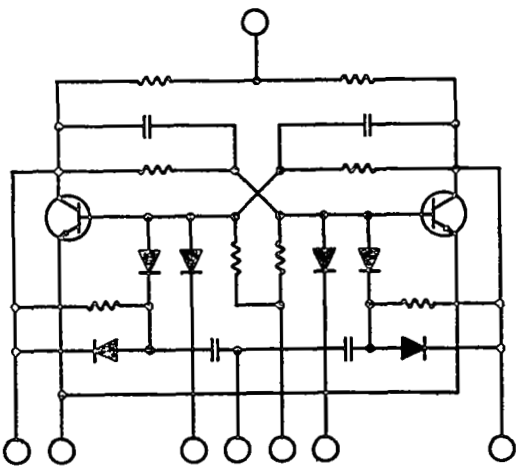

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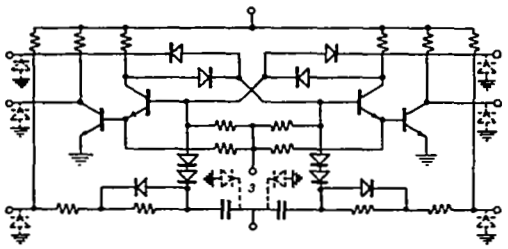

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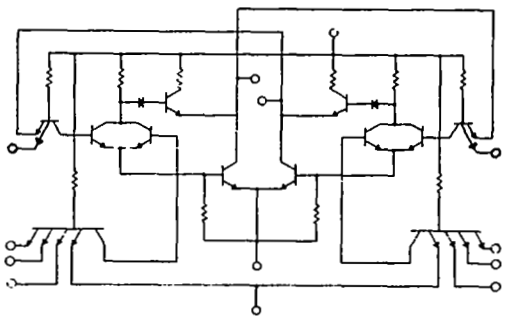

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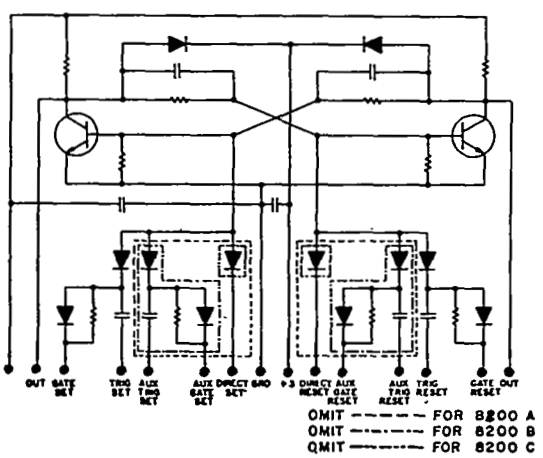

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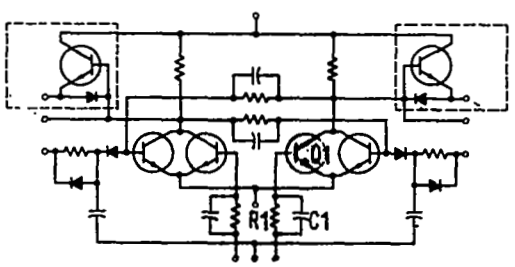
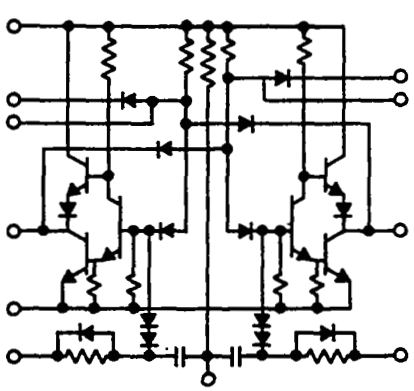


Note: Portion of circuitry within dotted line applies only to II-SN511, SN5112, SN5111; SPRG-US0111, US0101

235



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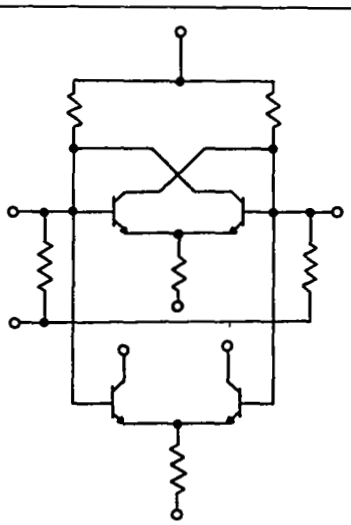

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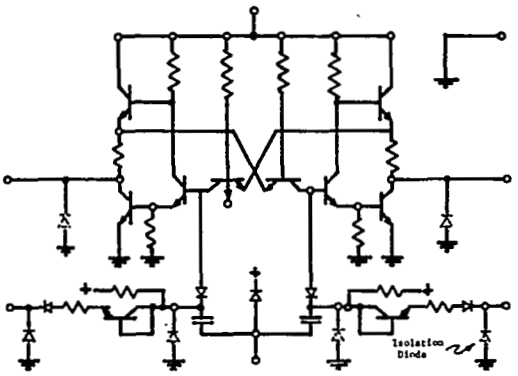

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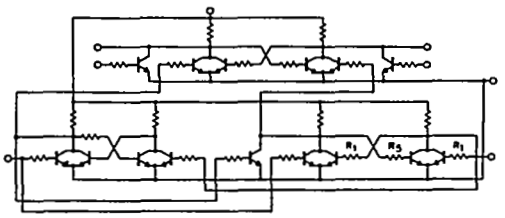

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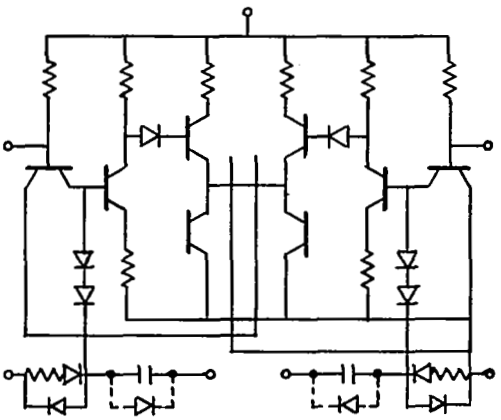

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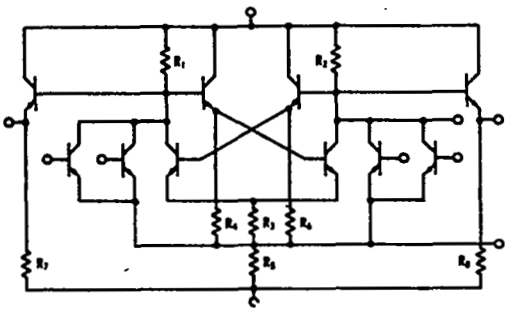

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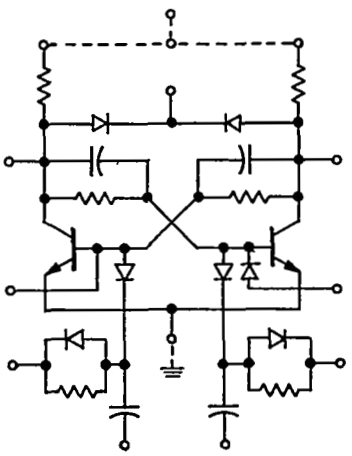

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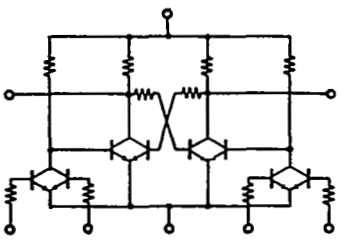

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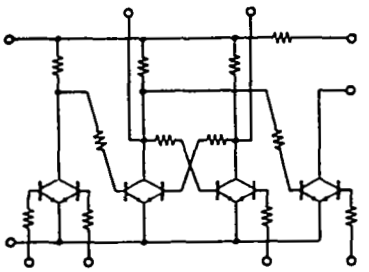

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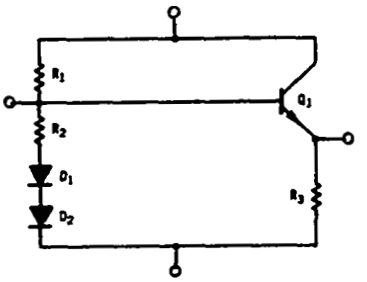

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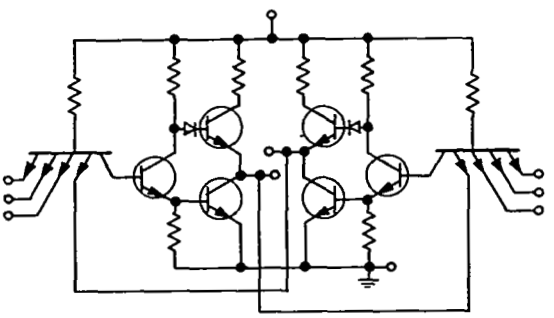

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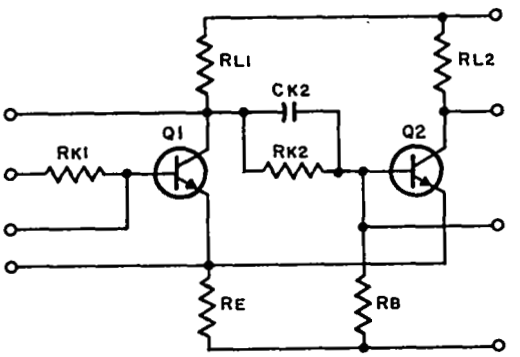

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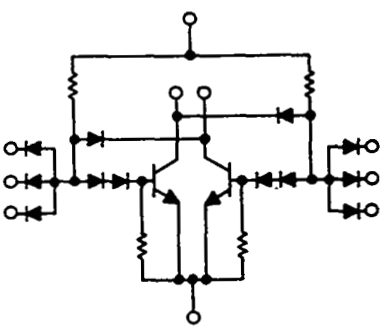

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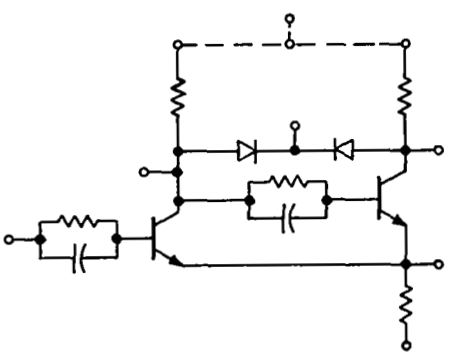

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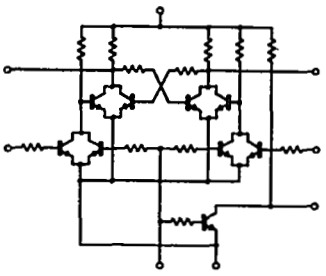

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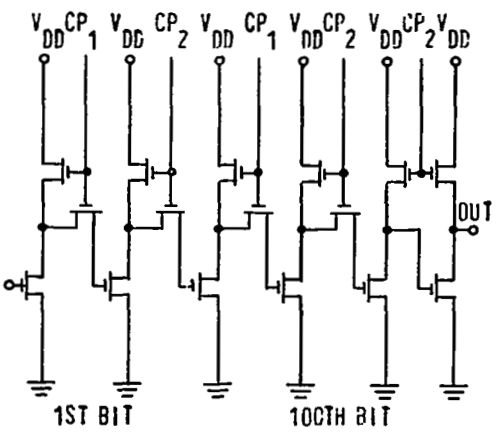

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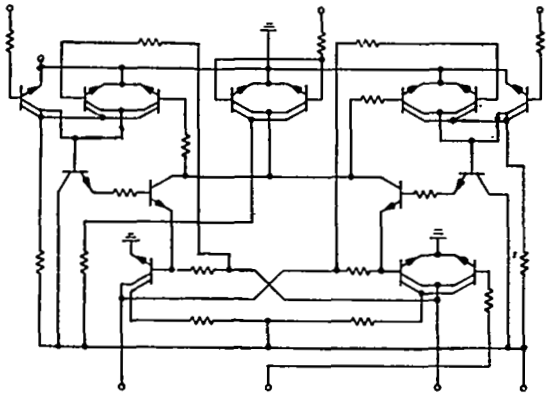

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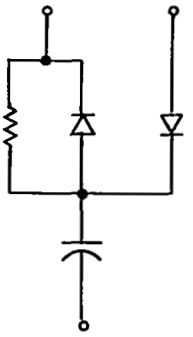

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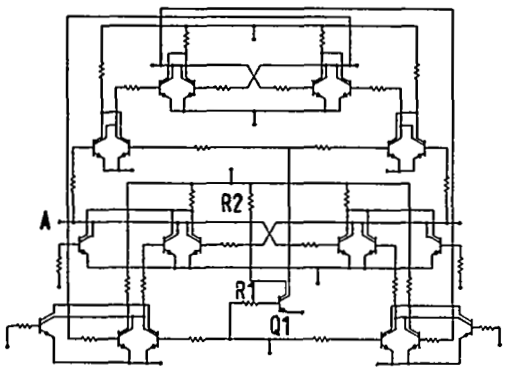

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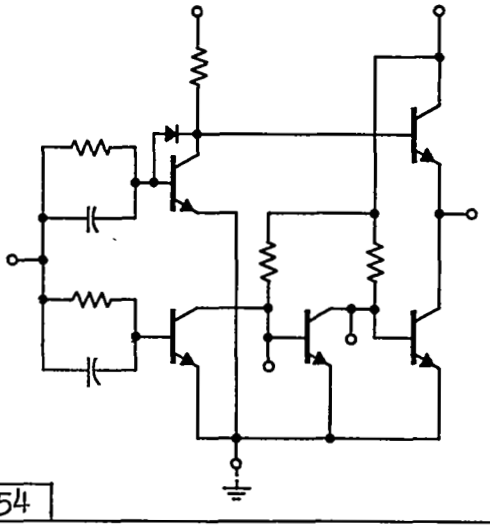

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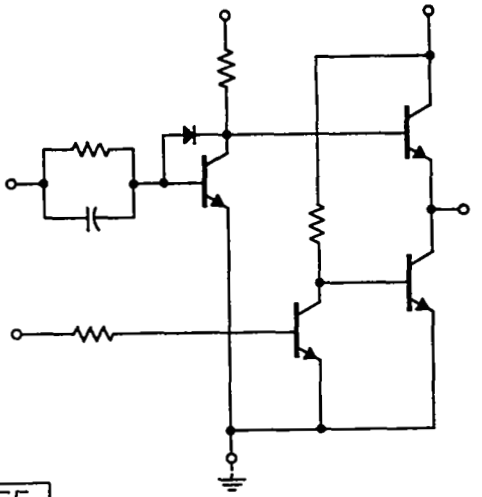

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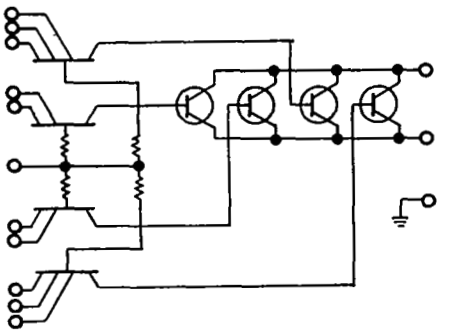

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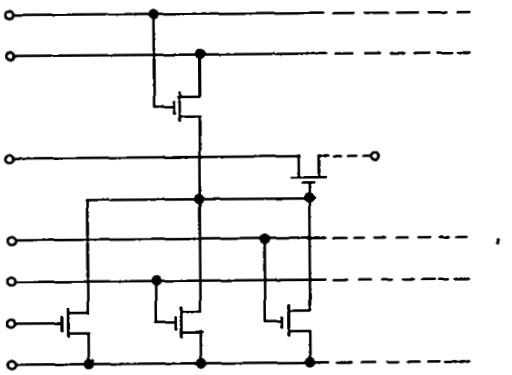

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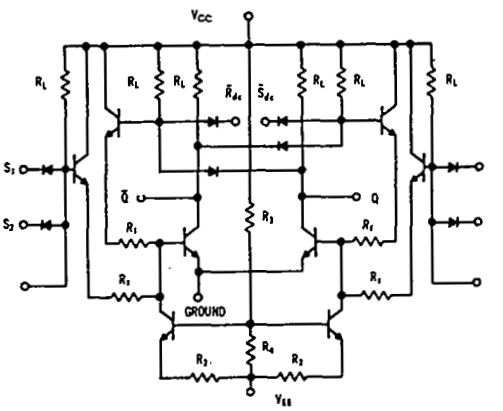

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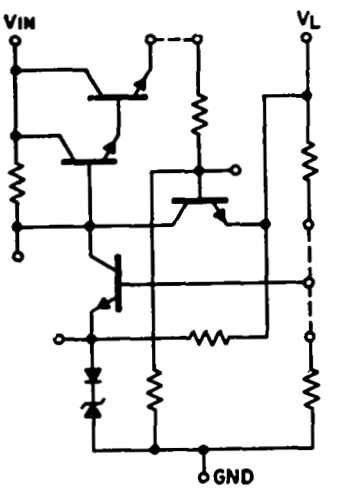

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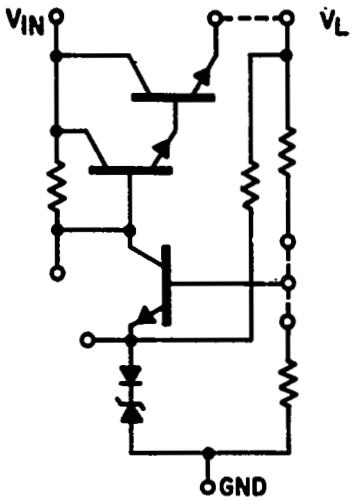

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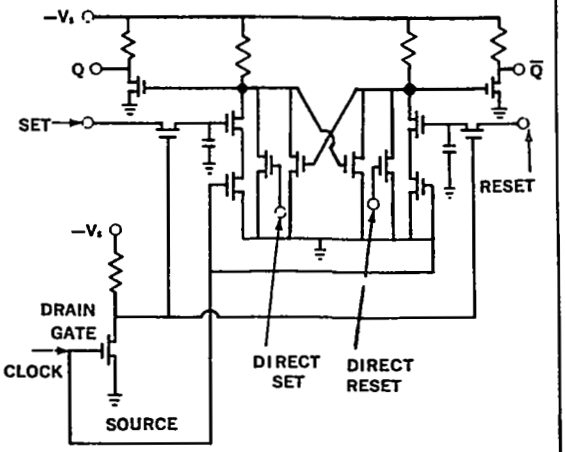

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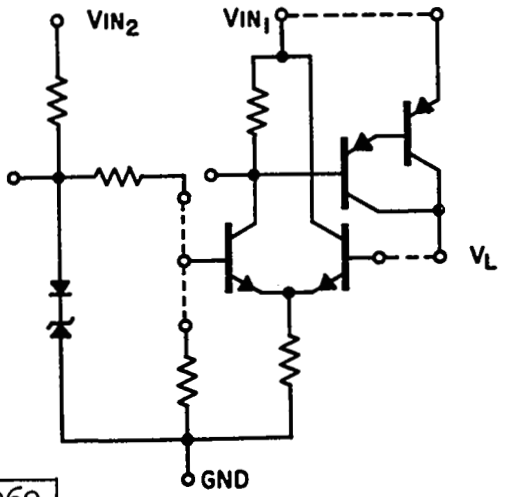

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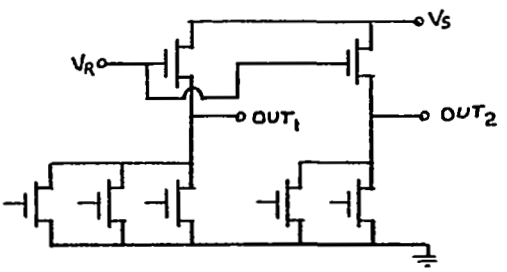

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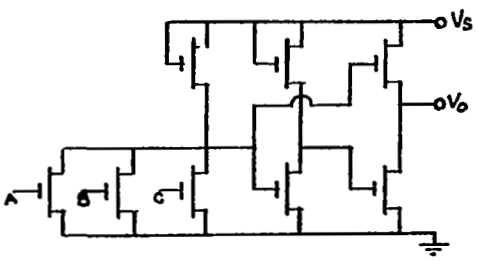

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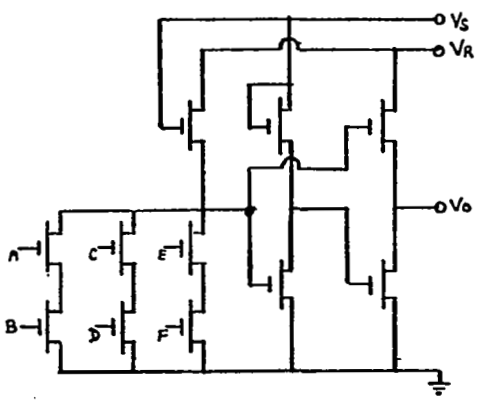

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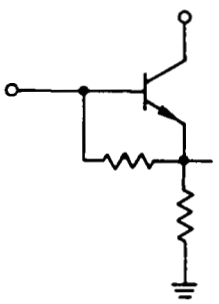

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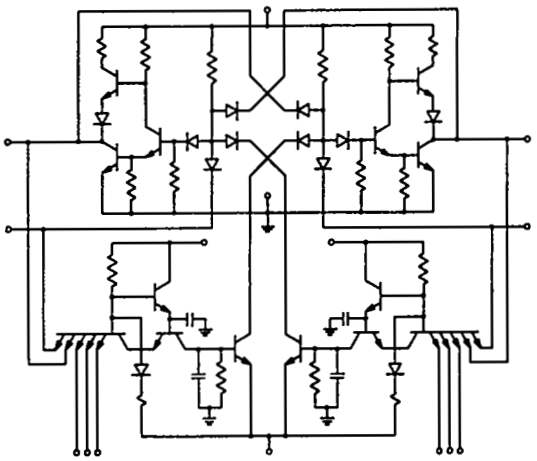

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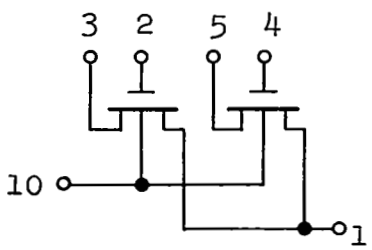

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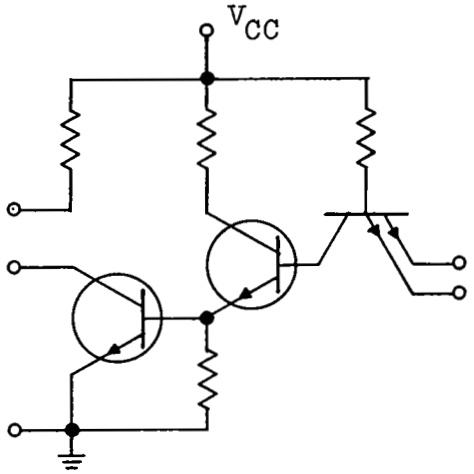

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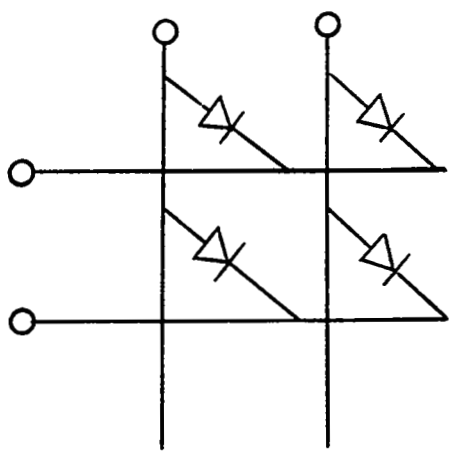

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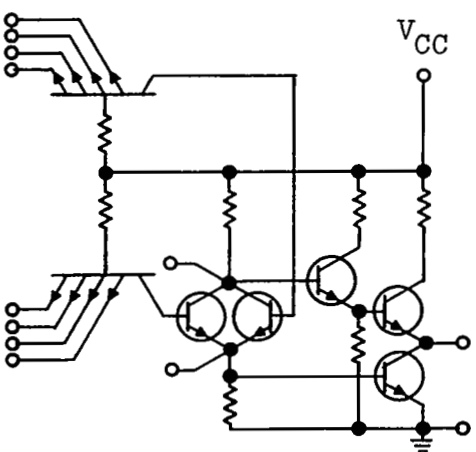

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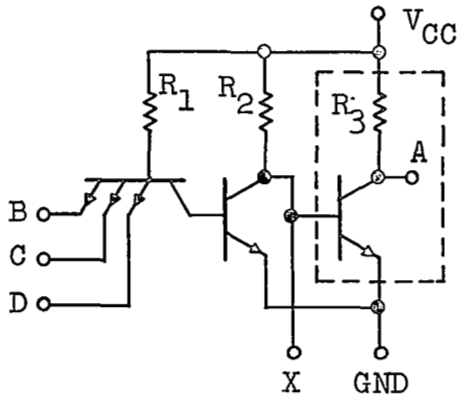

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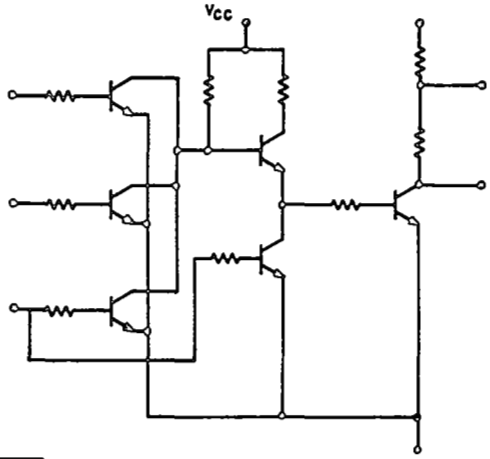

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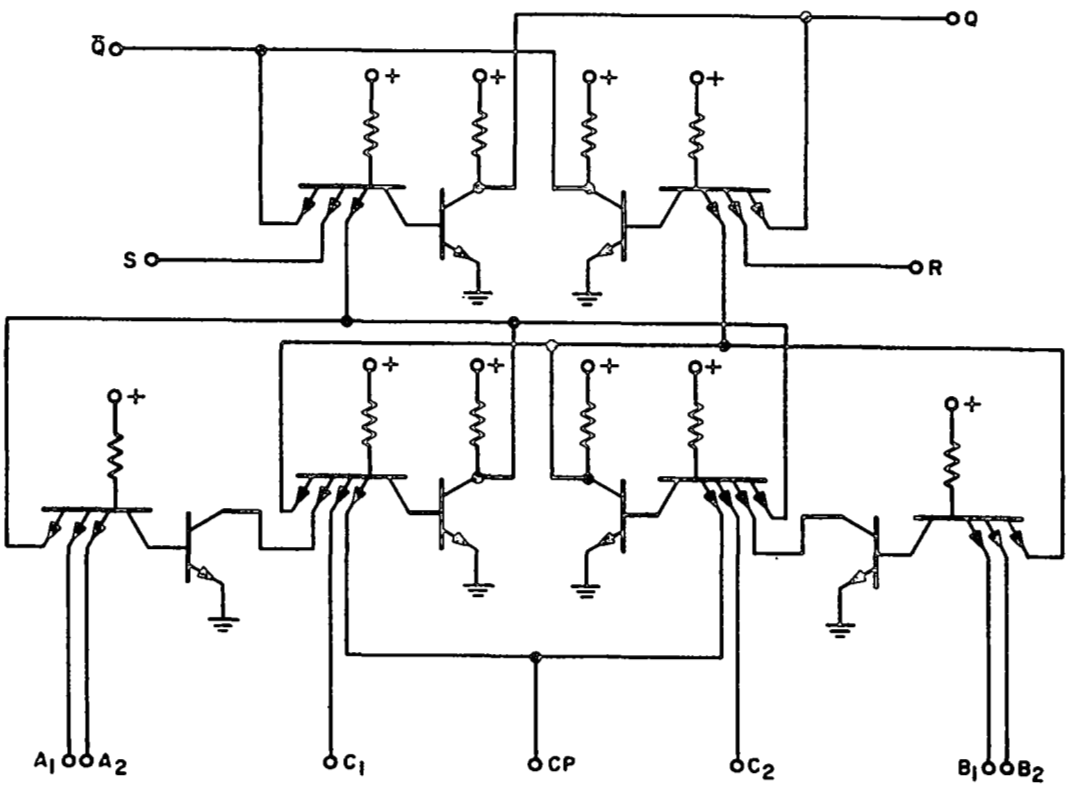

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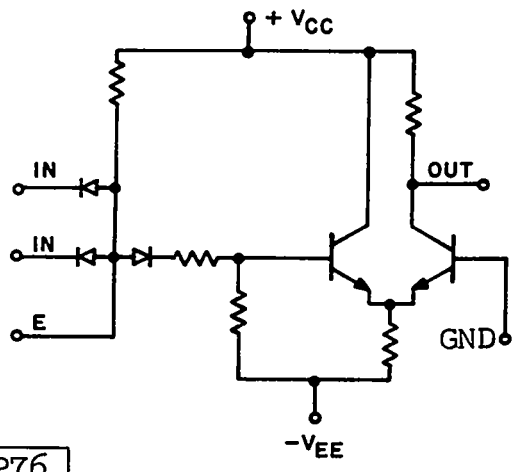

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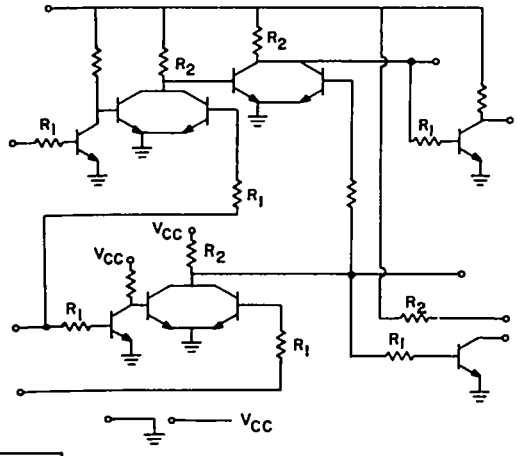

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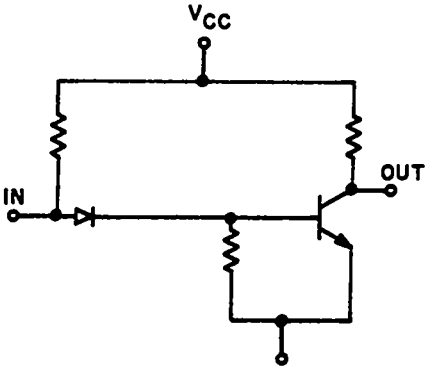

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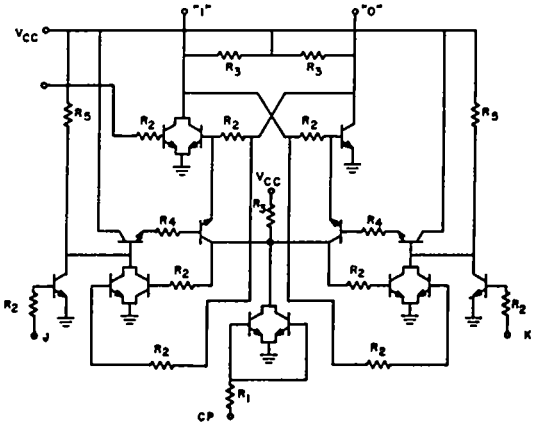

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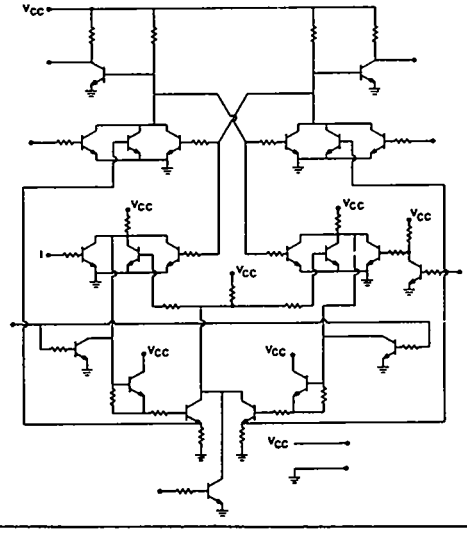

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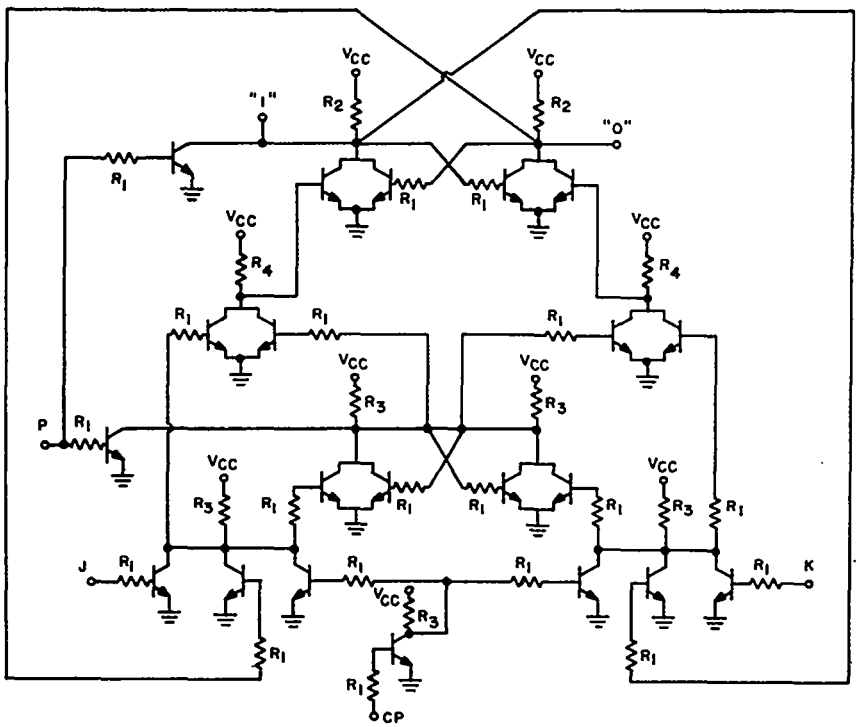

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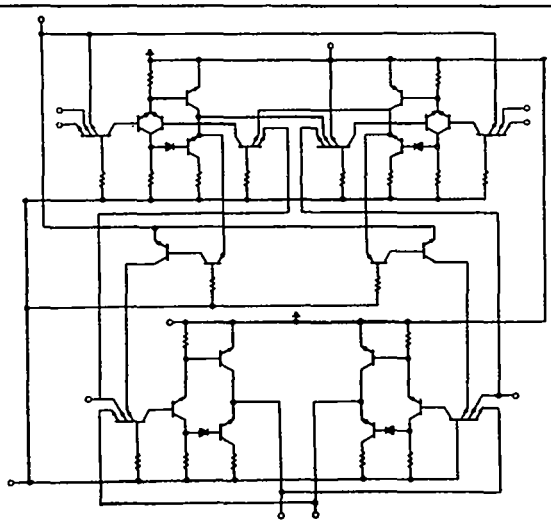

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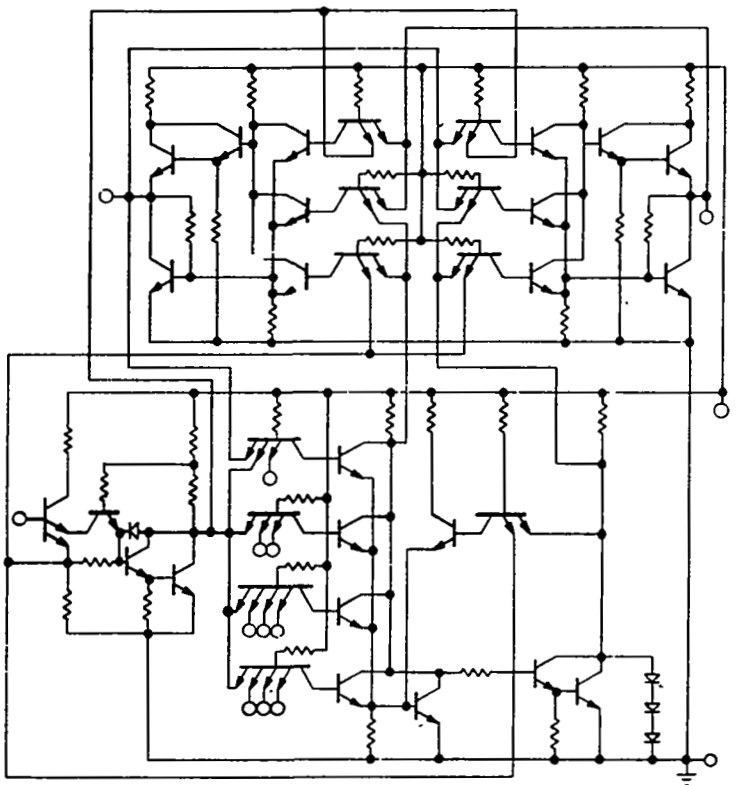

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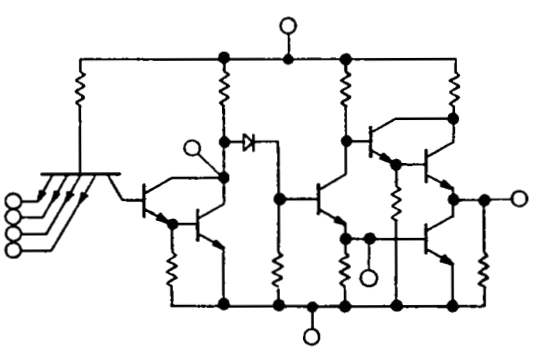

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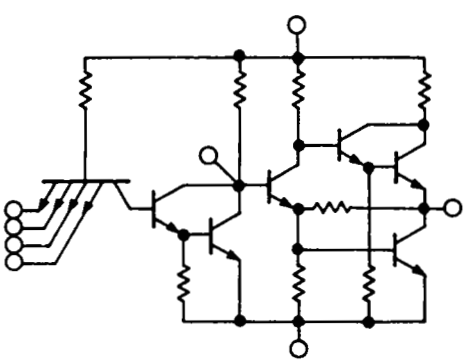

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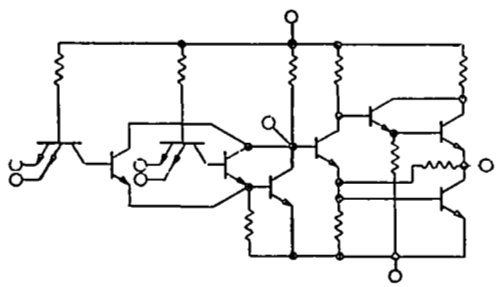

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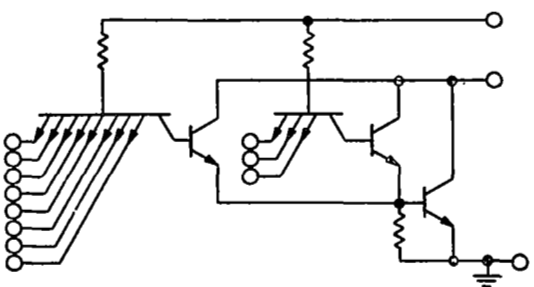

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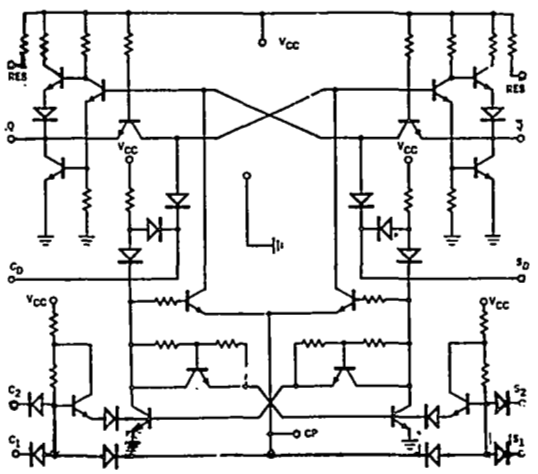

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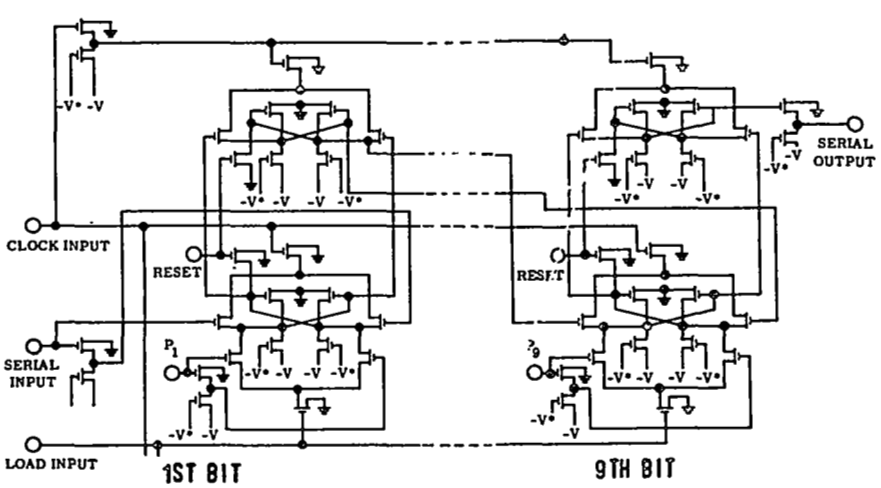

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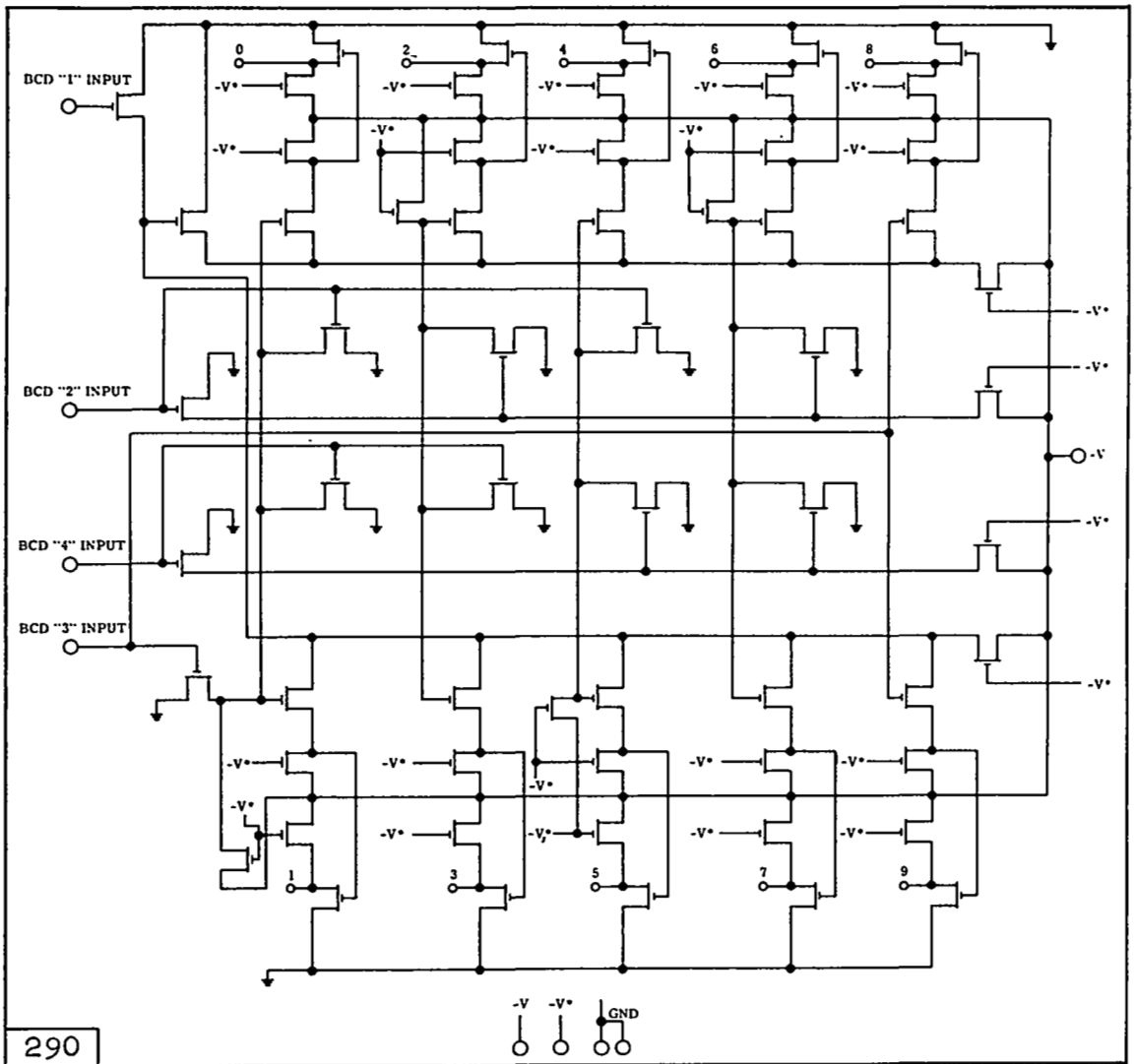
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BCD "2" INPUT
BCD "4" INPUT
BCD "3" INPUT
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2
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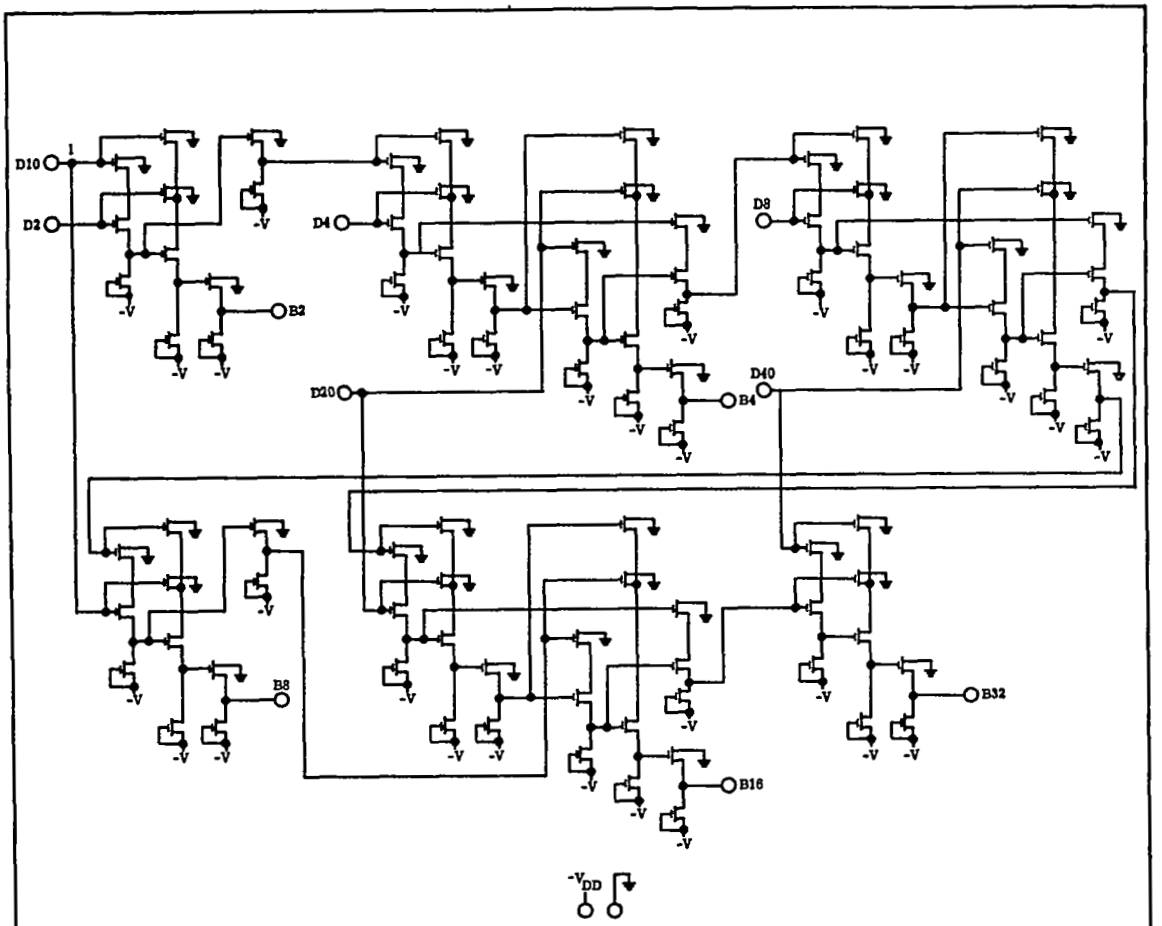
6
8
1
3
5
7
9
-V*
-V
GND
290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D2
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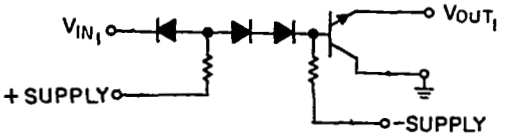
B2
B4
B8
B16
B32
-V
-V_DD

291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+SUPPLY
V_OUT1
-SUPPLY

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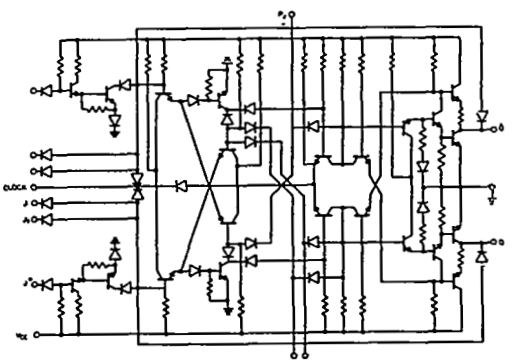

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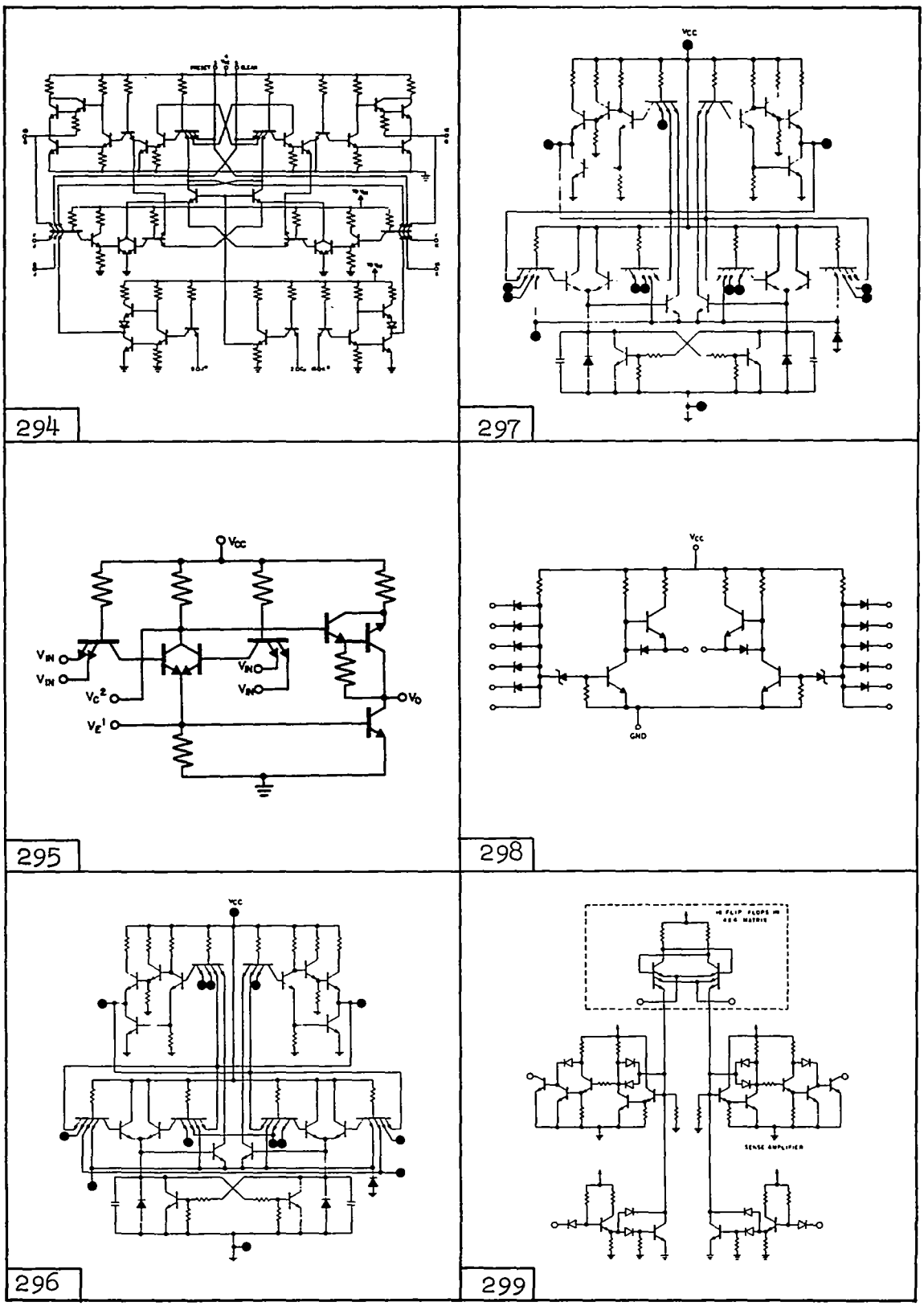
294
297
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V_{IN}
V_{IN}
V_C^2
V_E^1
V_{IN}
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V_O
295
V_{CC}
GND
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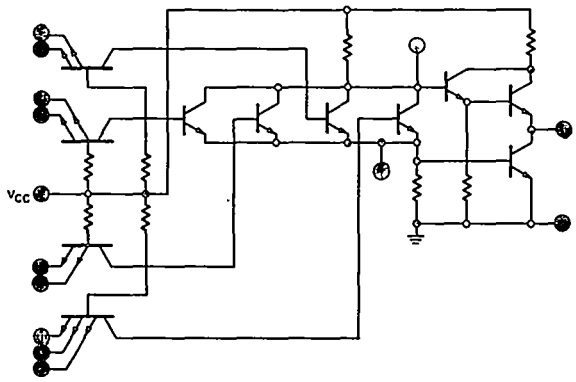
296
SENSE AMPLIFIER
299


Vcc

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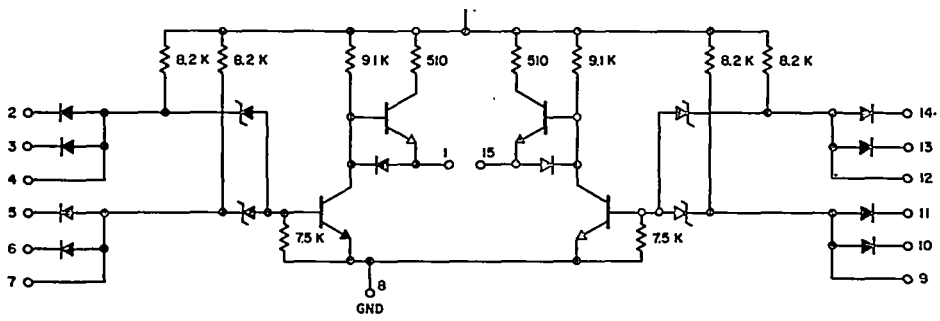
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510
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8.2 K
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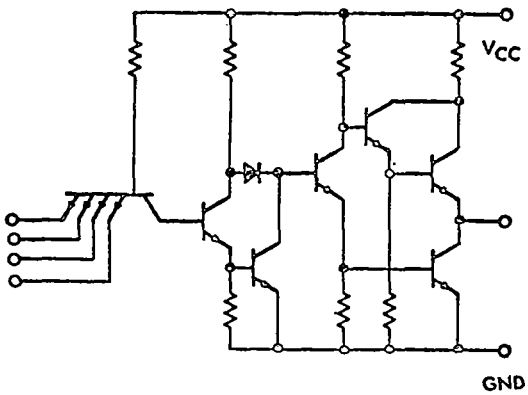
7
1
15
7.5 K
7.5 K
8
GND
14
13
12
11
10
9

301


Vcc
GND

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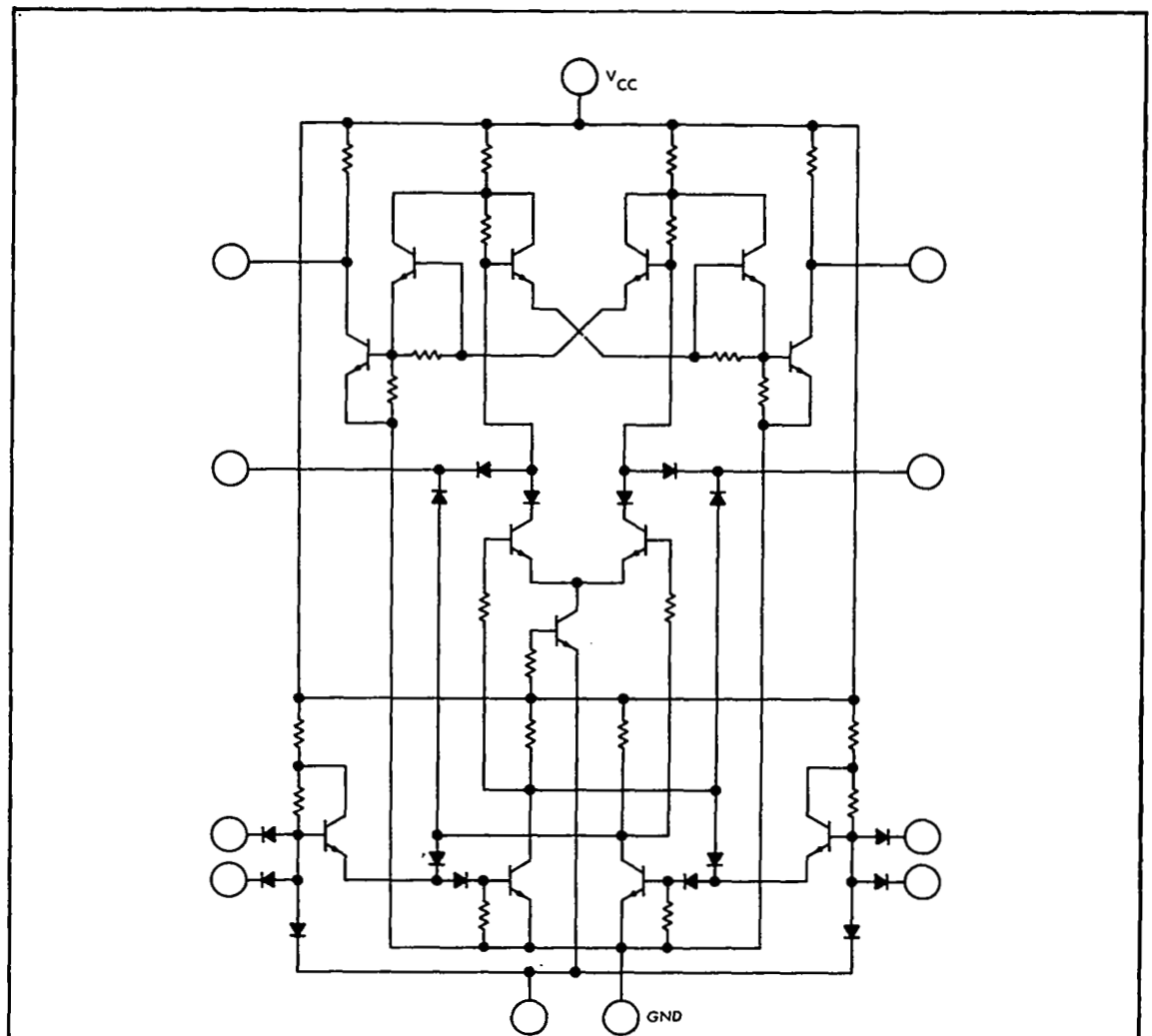

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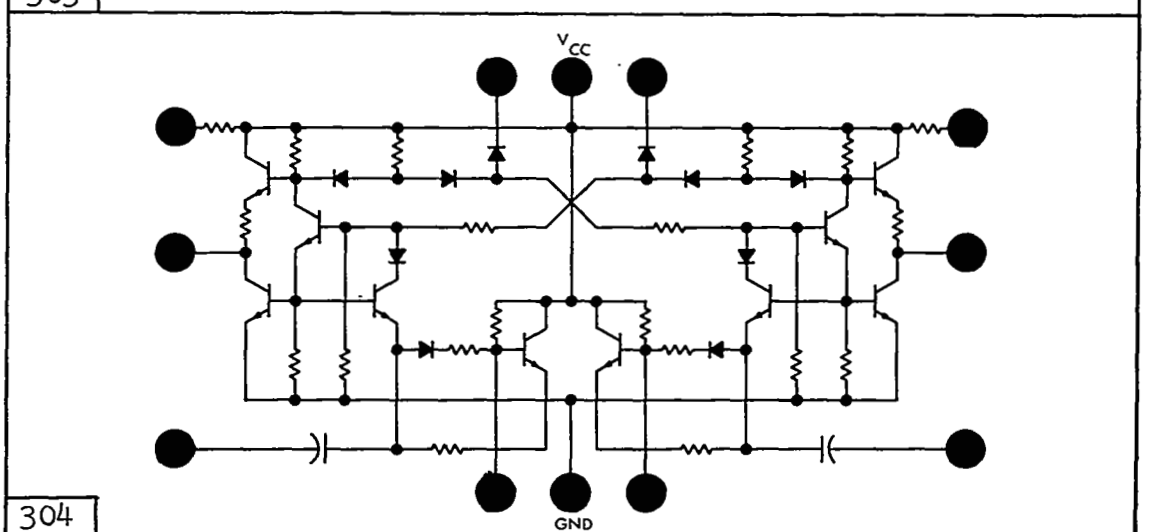

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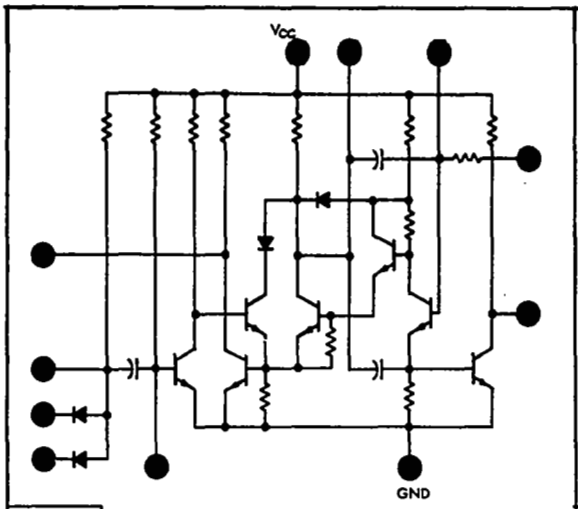

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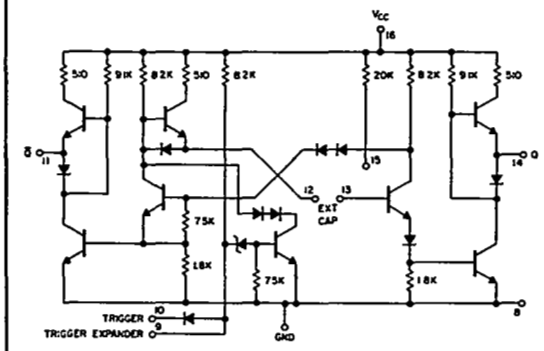

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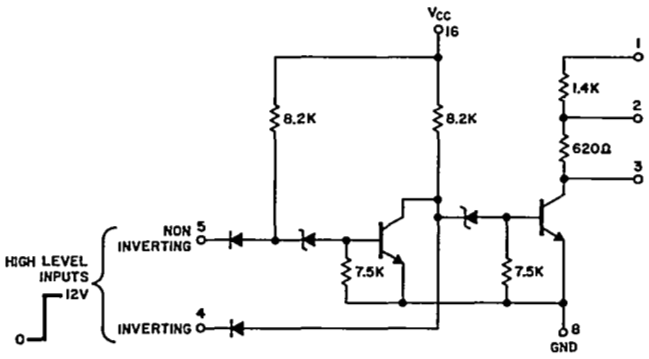

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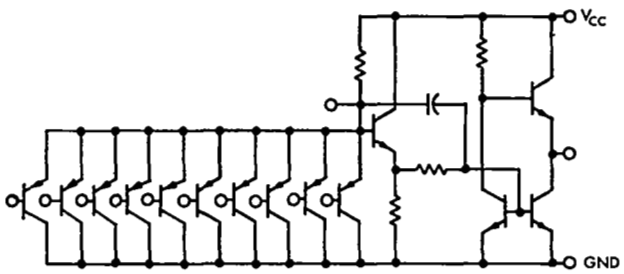

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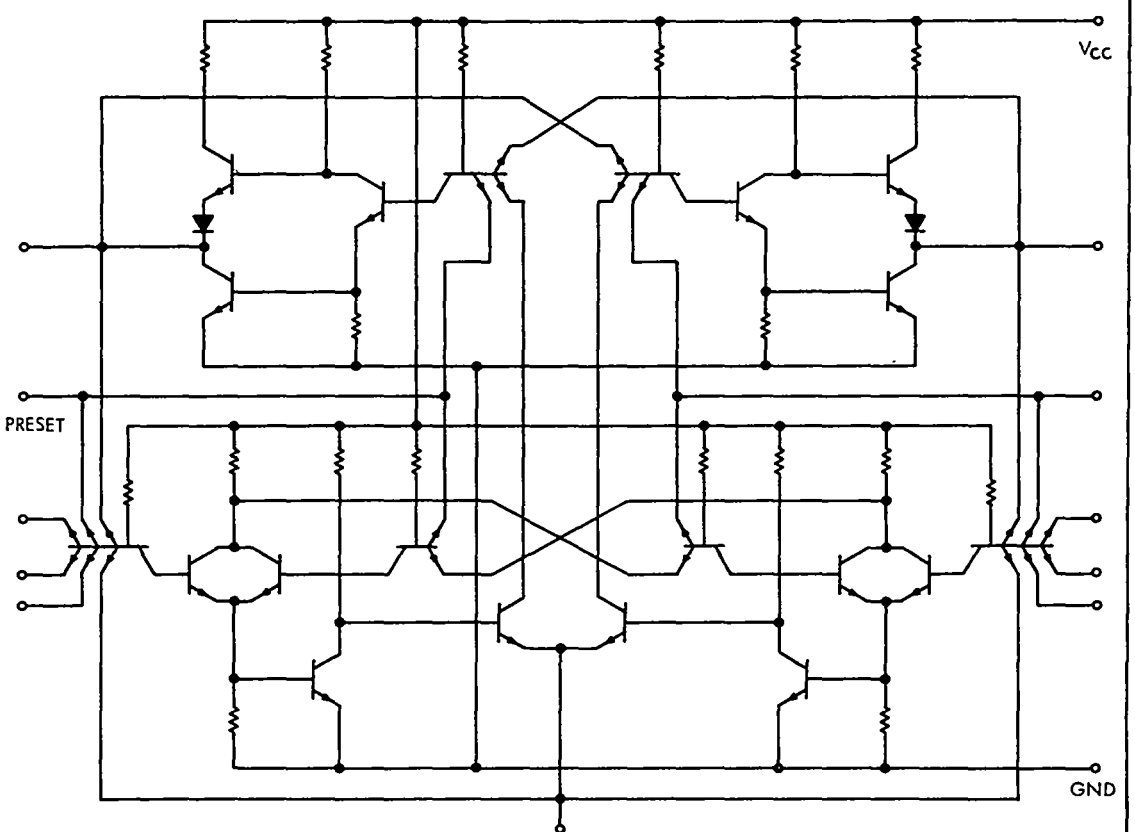
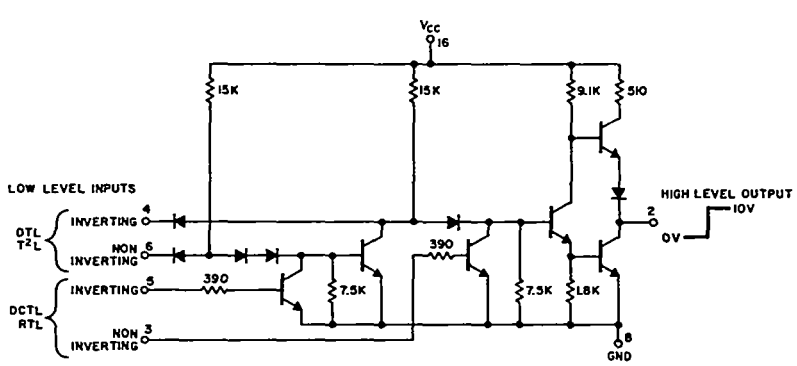
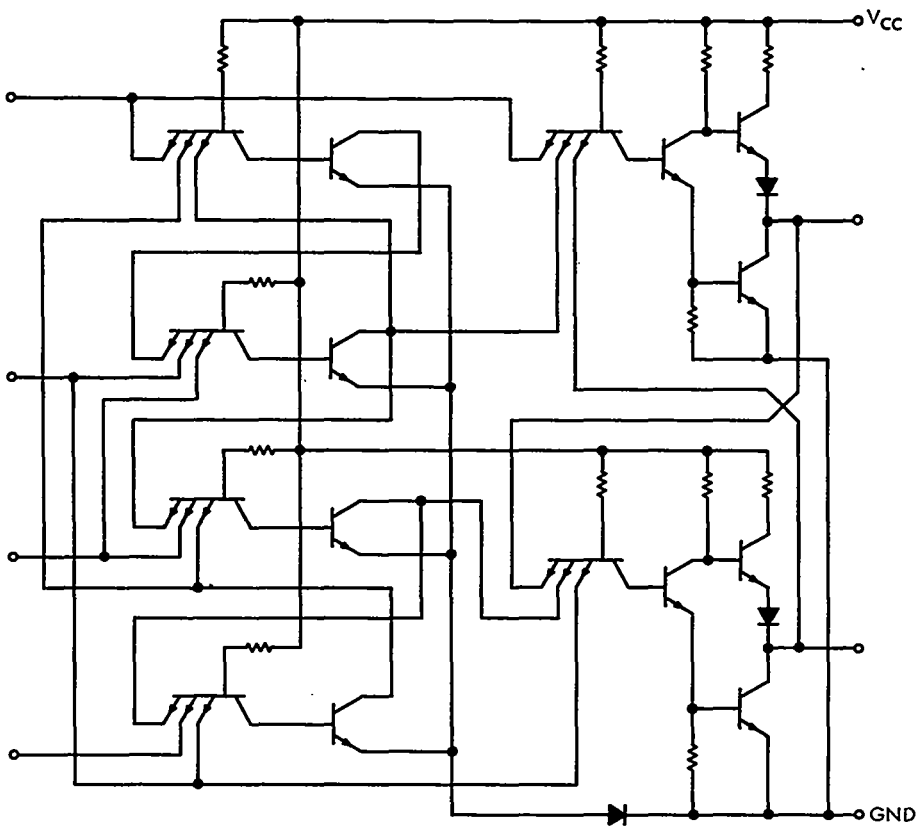

Vcc
PRESET
GND

309


Vcc
16
15K
15K
9.1K
510
LOW LEVEL INPUTS
HIGH LEVEL OUTPUT
10V
0V
OTL
T²L
INVERTING
4
NON
INVERTING
6
2
390
INVERTING
5
390
7.5K
7.5K
1.8K
DCTL
RTL
NON
INVERTING
3
8
GND

310



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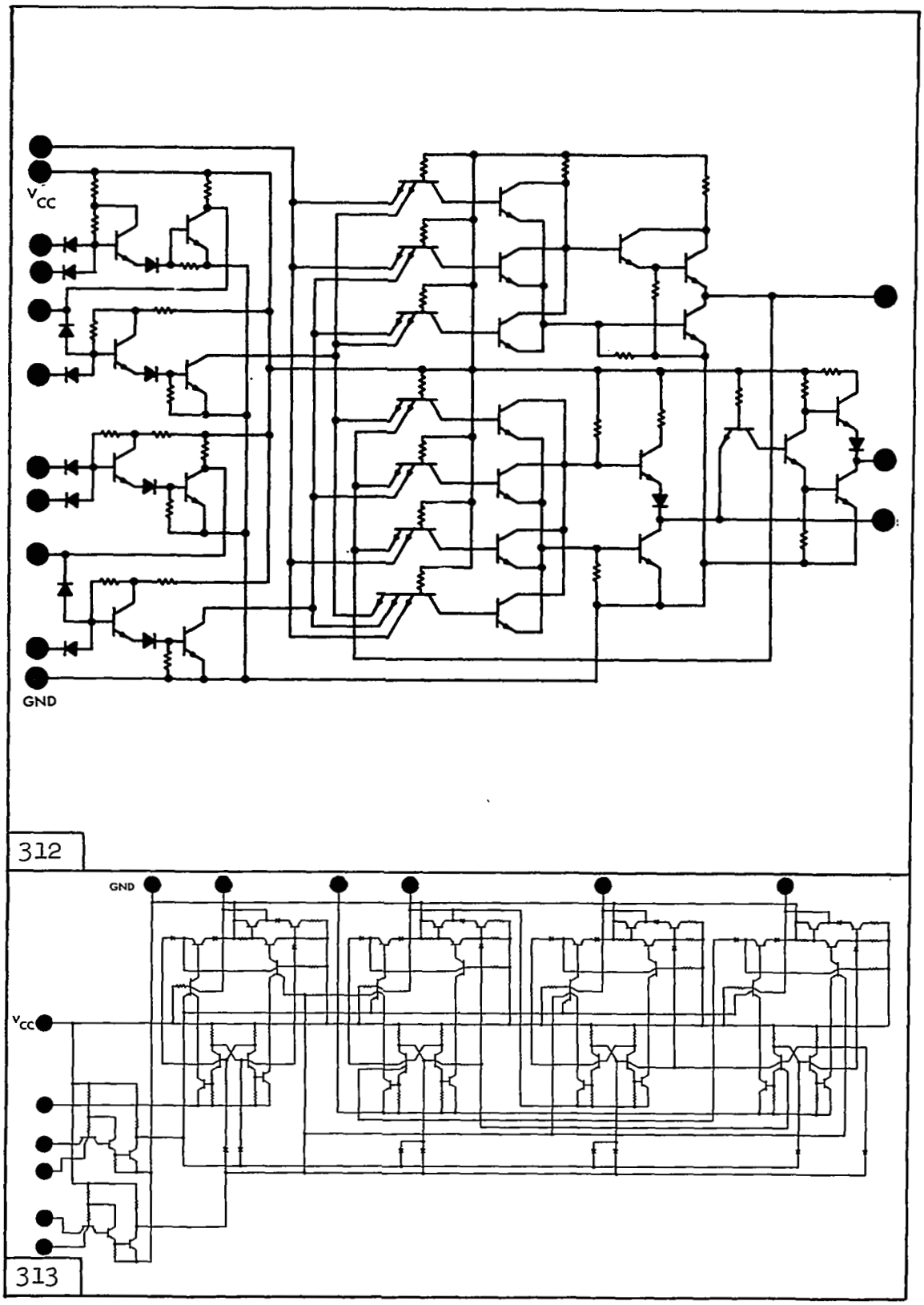
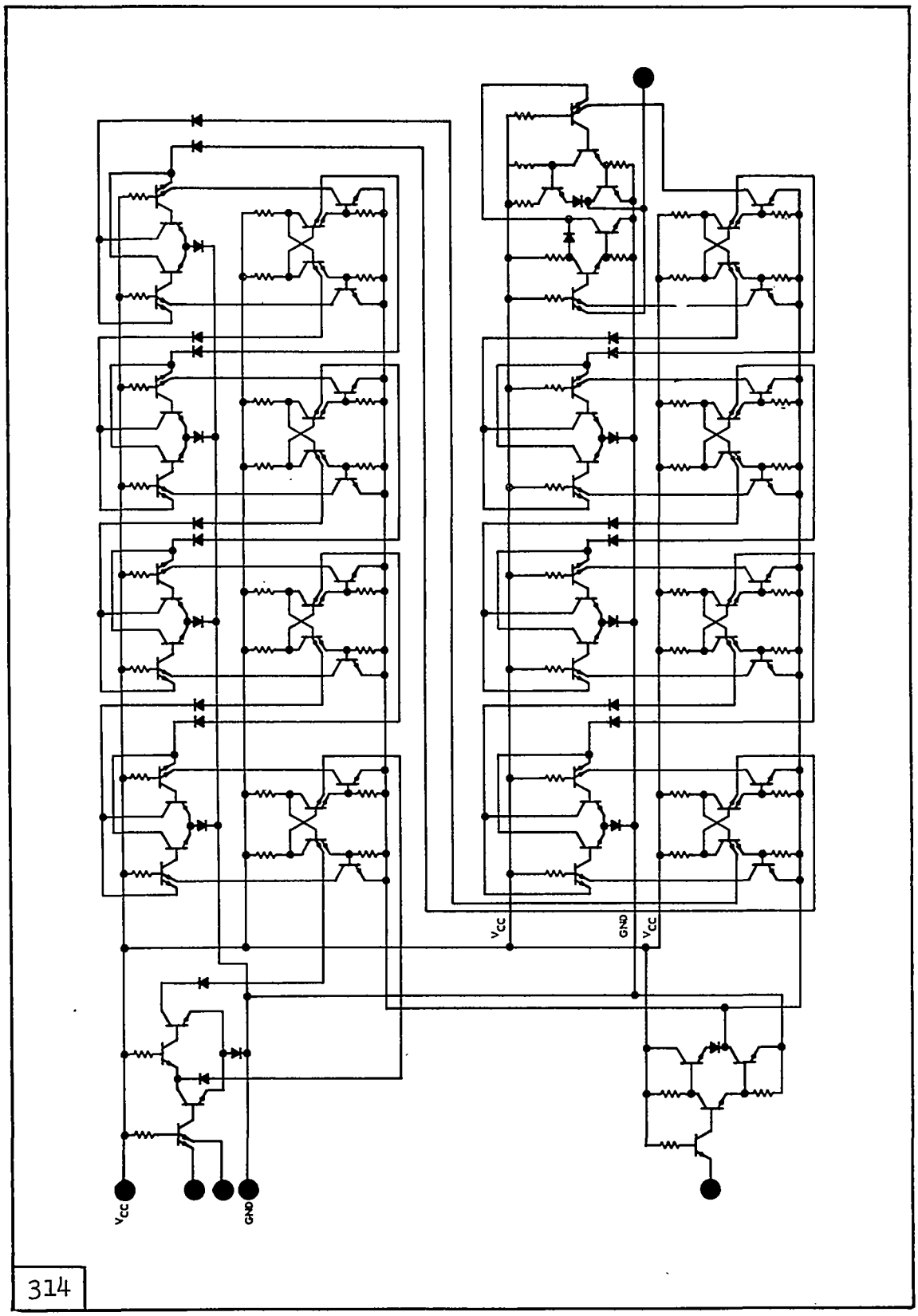

V_{CC}
GND
312
GND
V_{CC}
313



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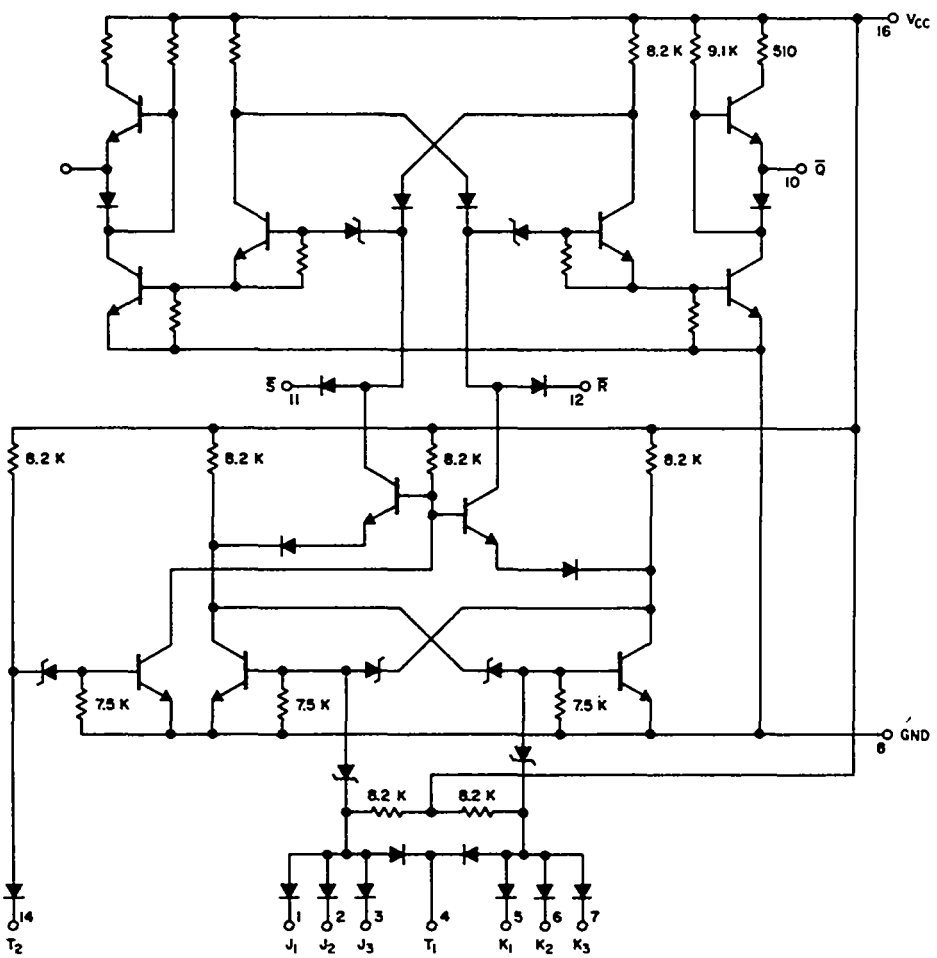
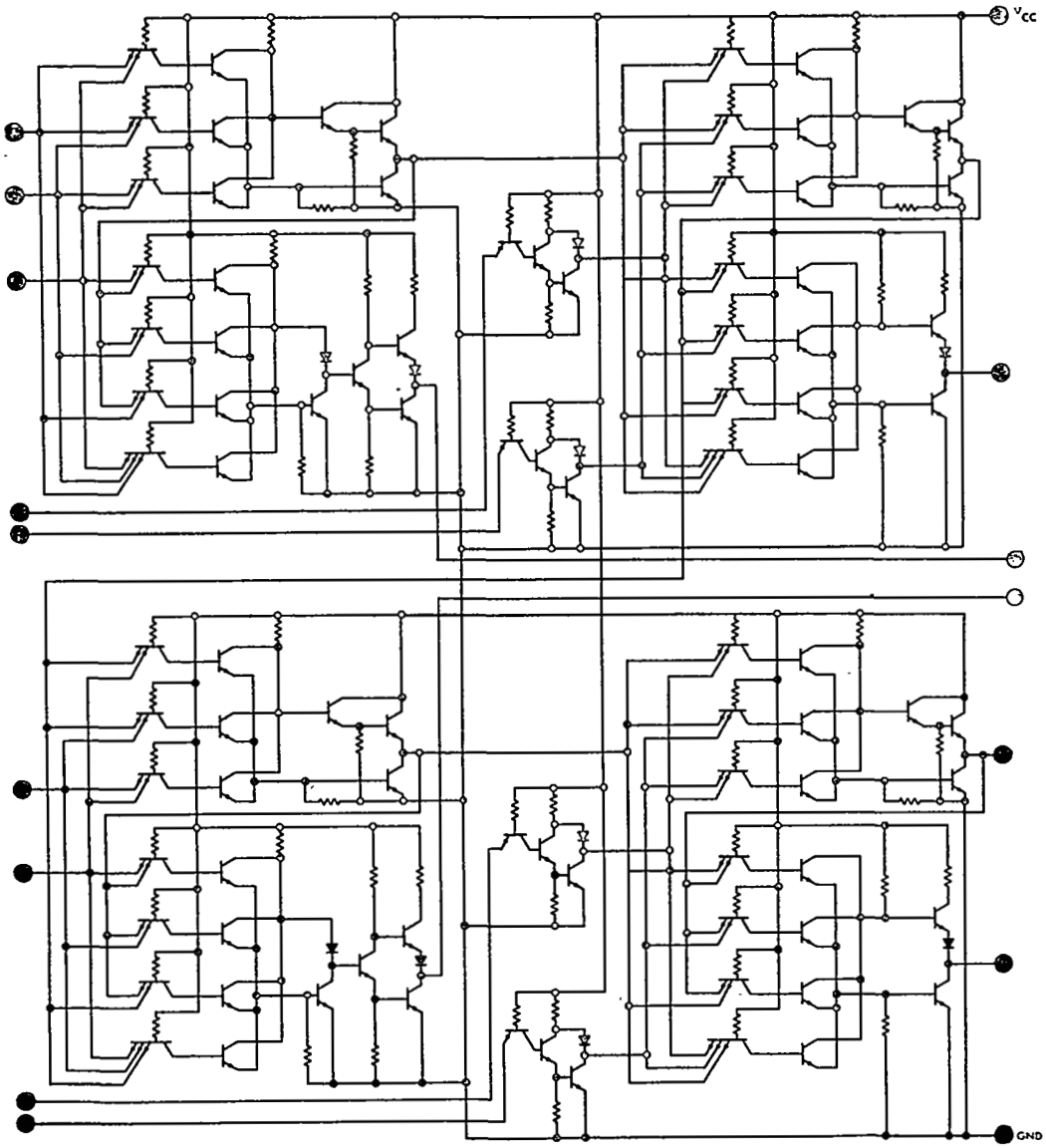

8.2 K
9.1 K
510
16 Vcc
10 Q̄
S̄ 11
12 R̄
8.2 K
8.2 K
8.2 K
8.2 K
7.5 K
7.5 K
7.5 K
8 GND
8.2 K
8.2 K
14 T2
1 J1
2 J2
3 J3
4 T1
5 K1
6 K2
7 K3

315



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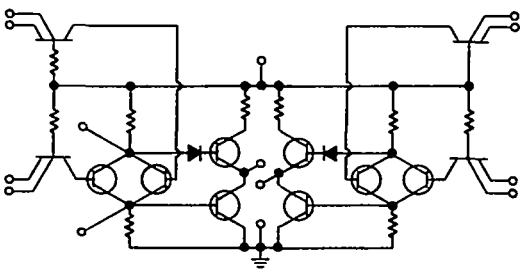

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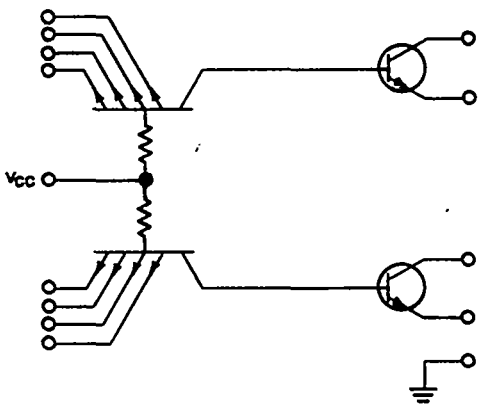

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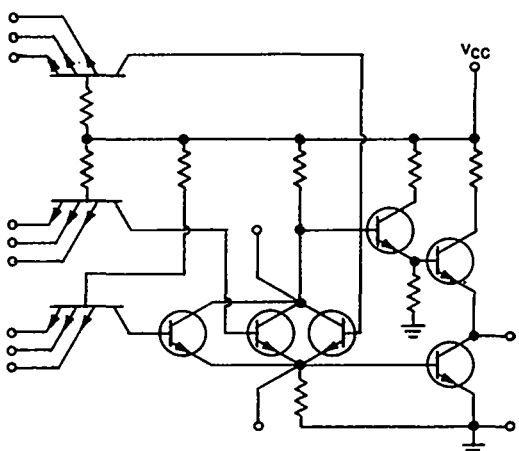

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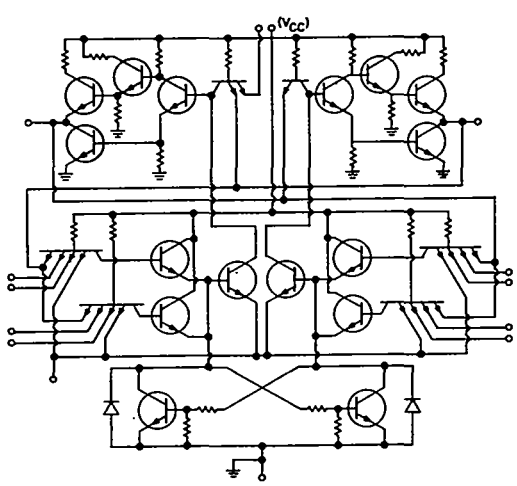

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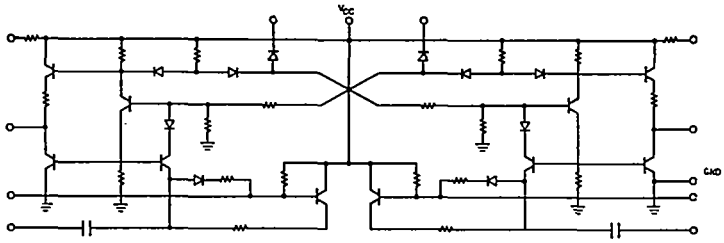

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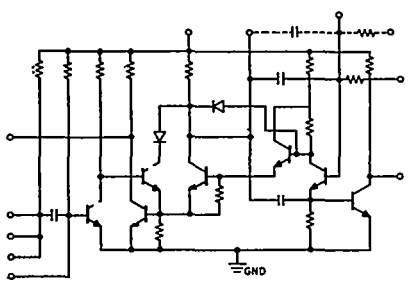

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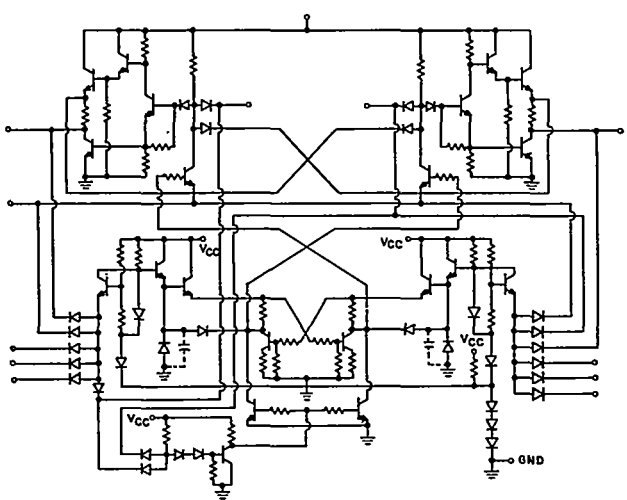

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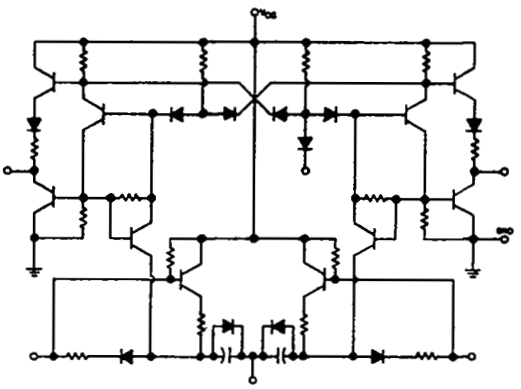

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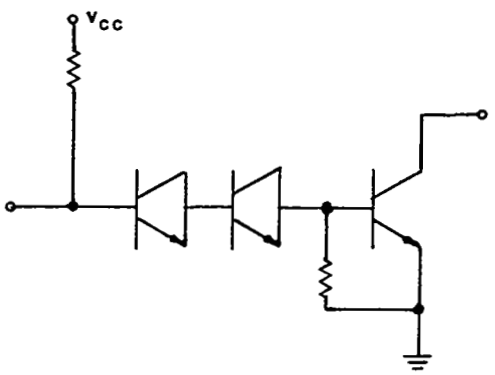

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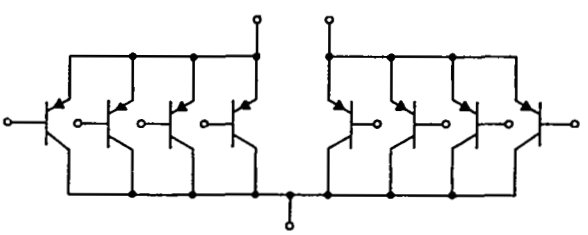

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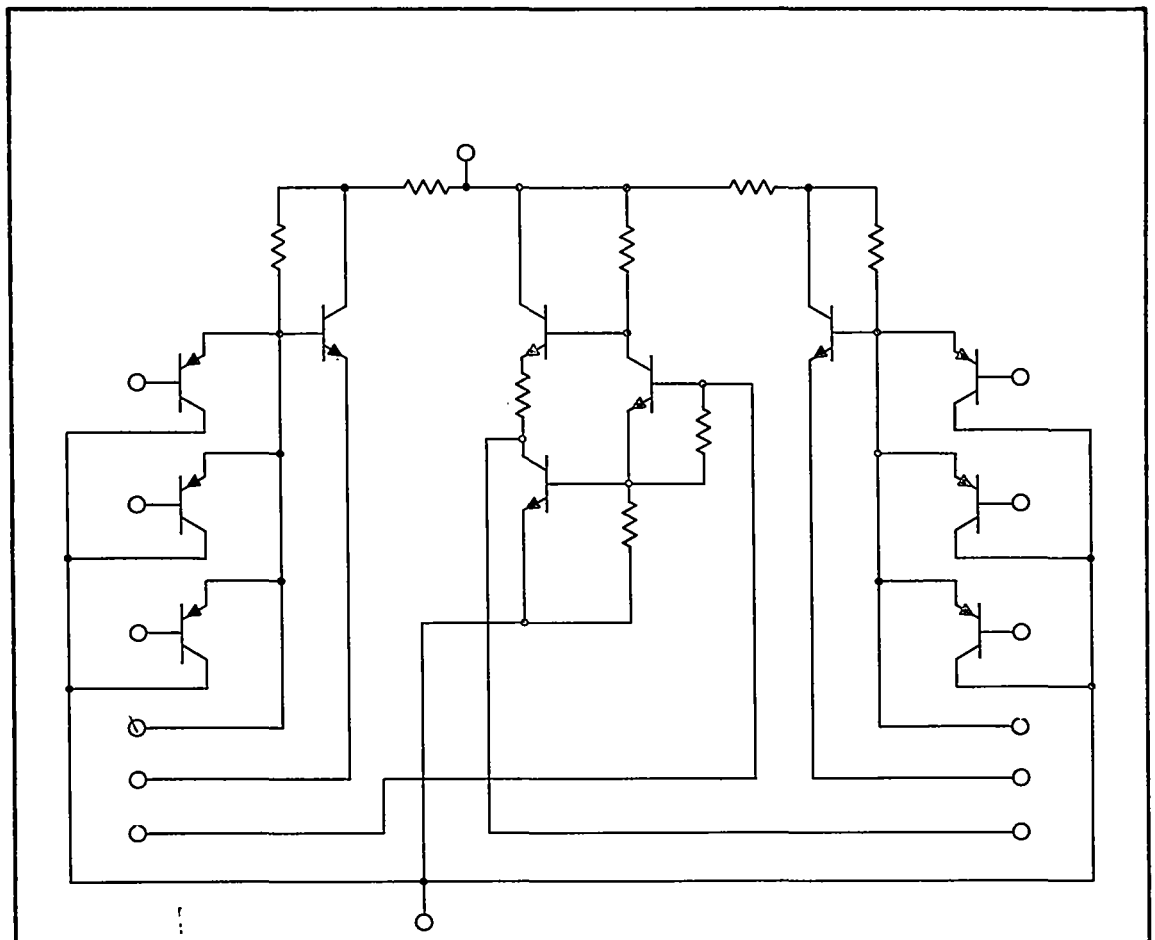

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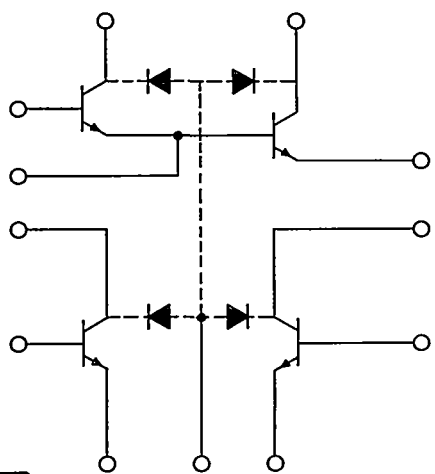

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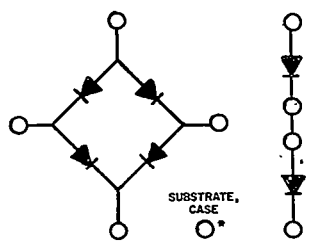

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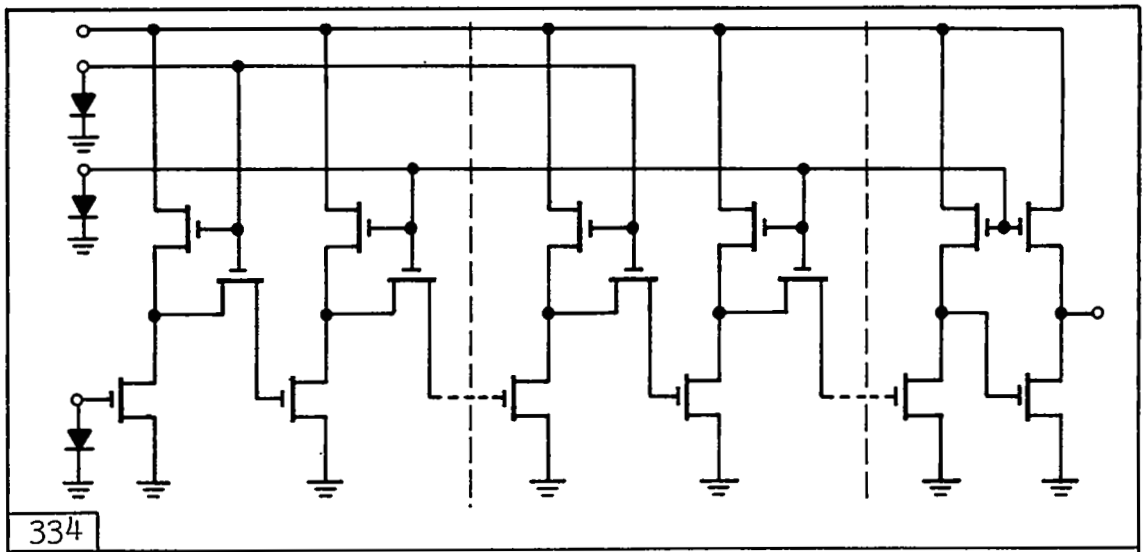

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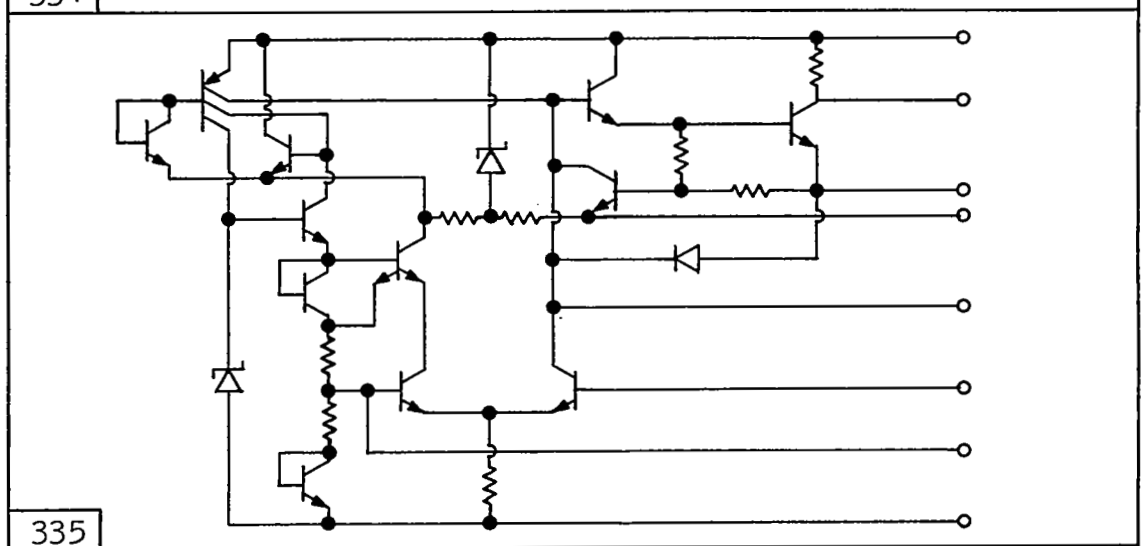

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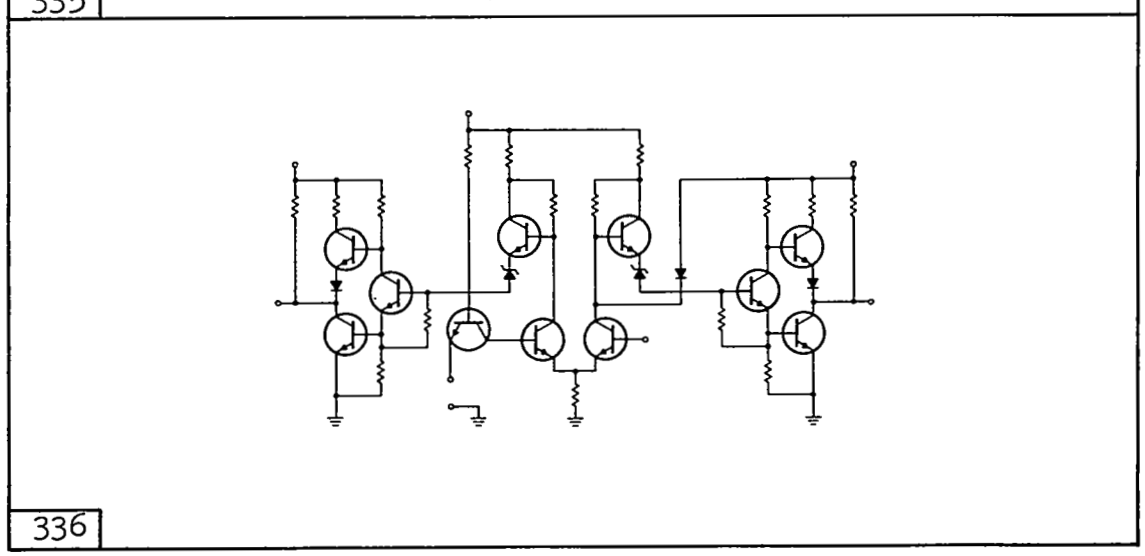

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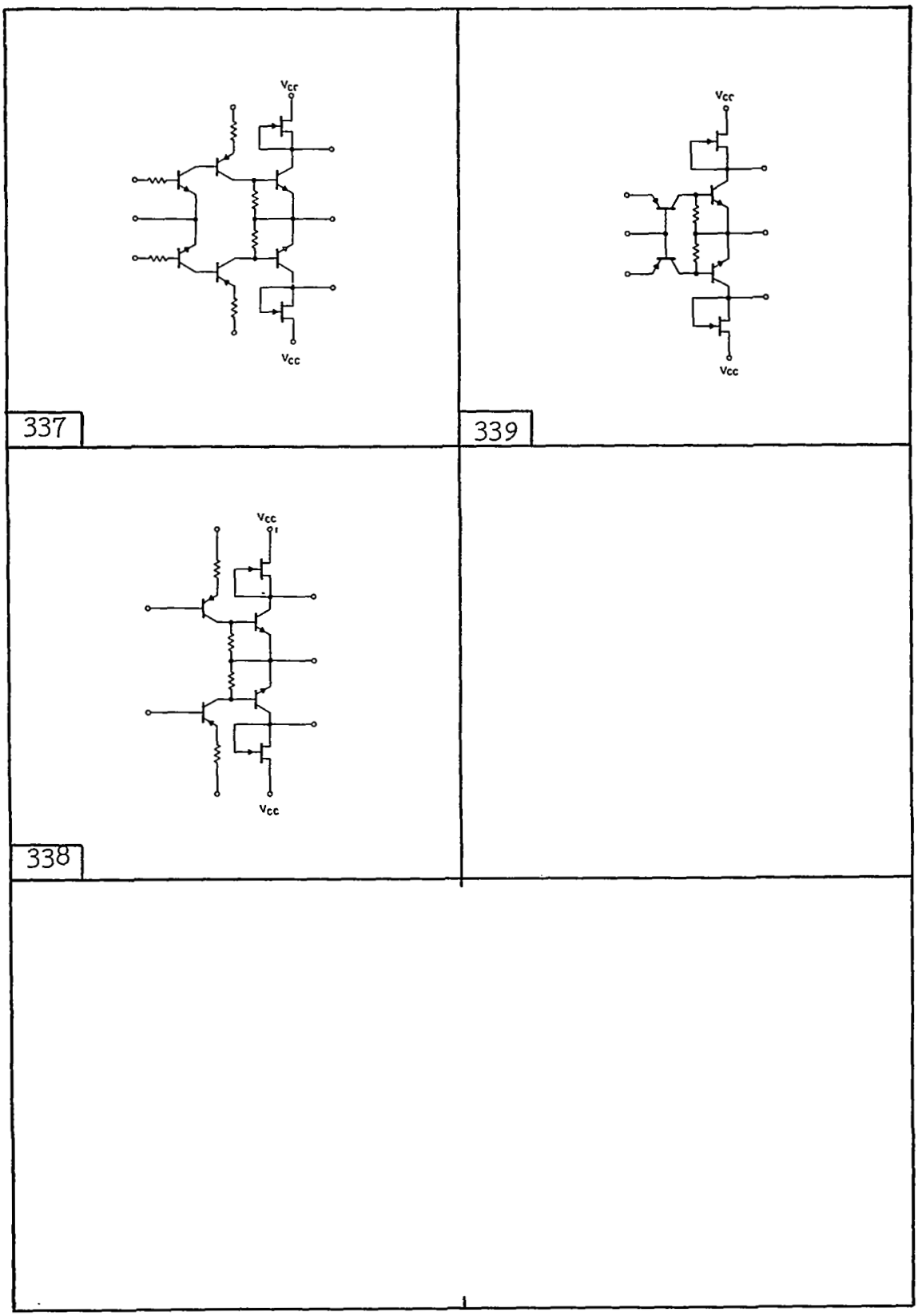
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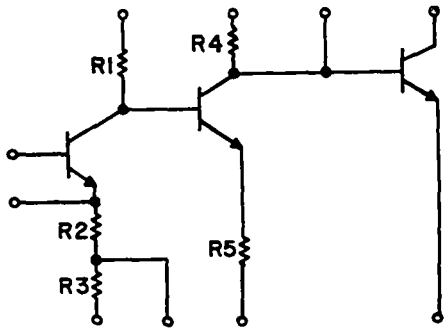
339
338
Vcc
Vcc
Vcc
Vcc
Vcc



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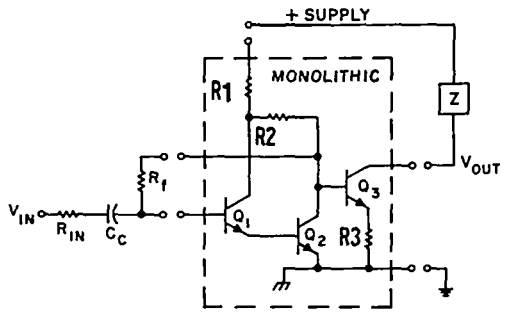

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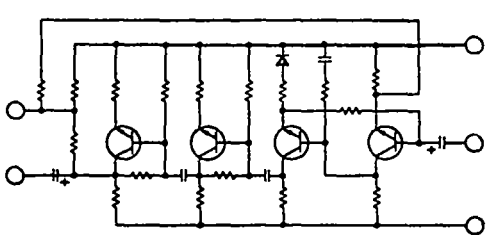

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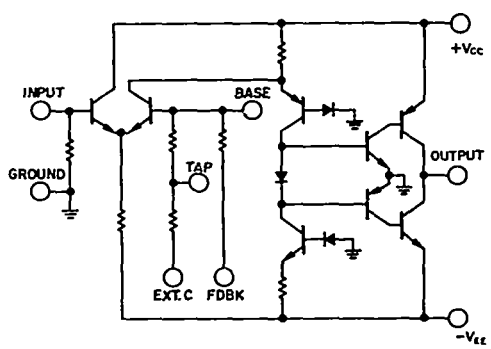

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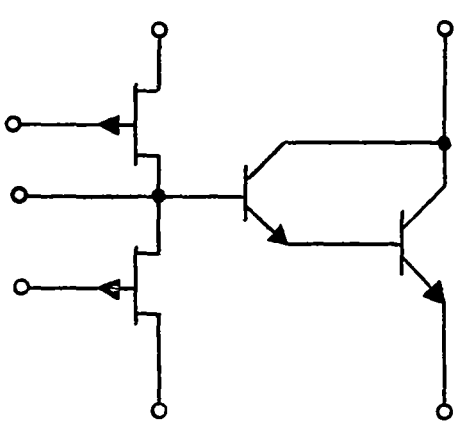

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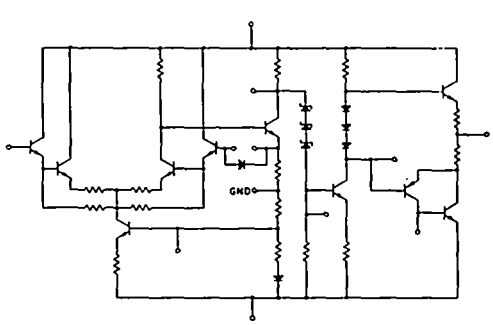

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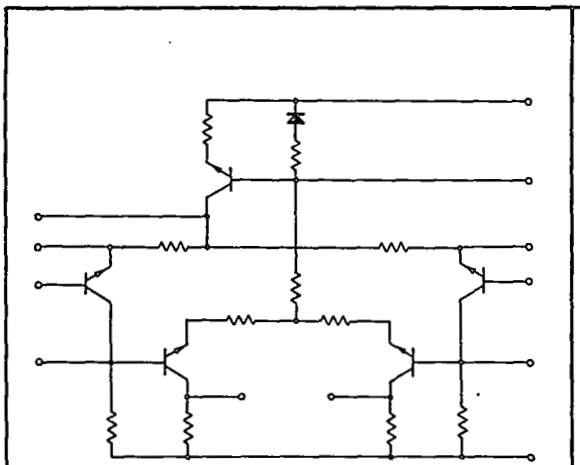

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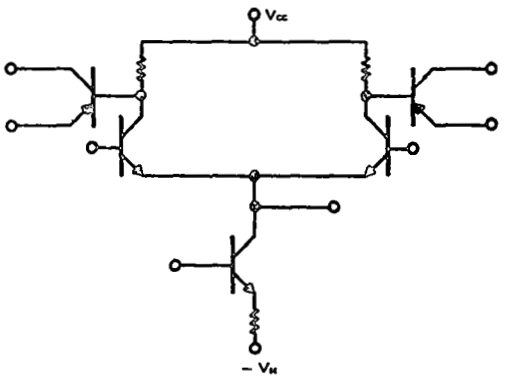

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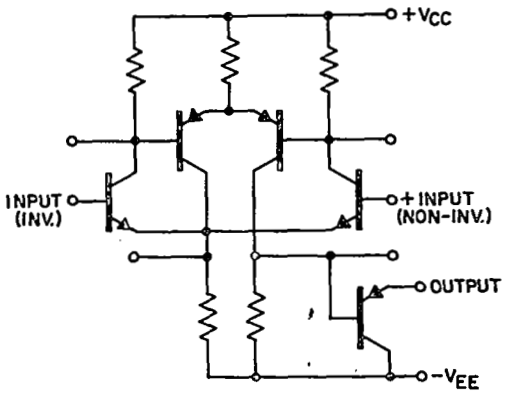

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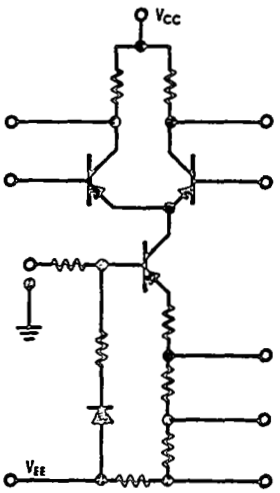

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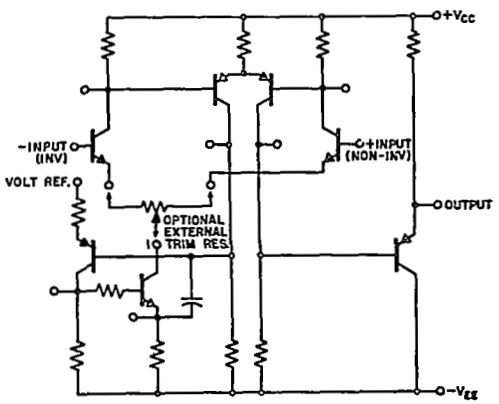

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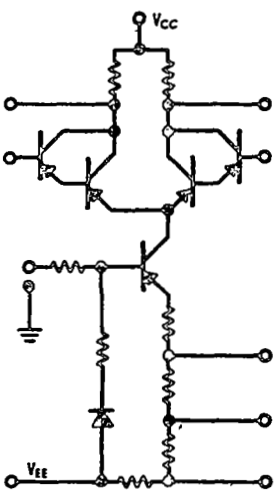

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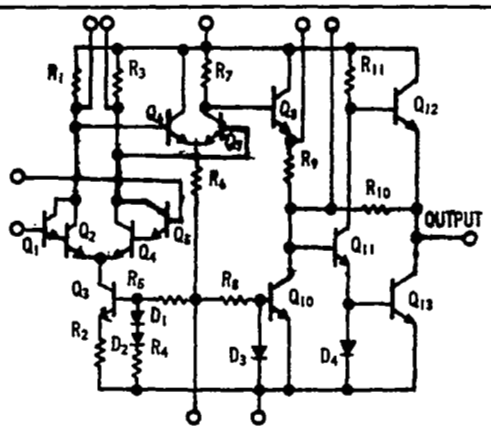
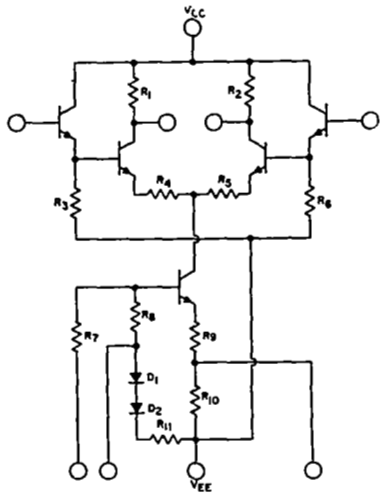


Note: Q1 and Q5 are omitted from MOTA MC1530. Inputs are to bases of Q2 and Q4.

513



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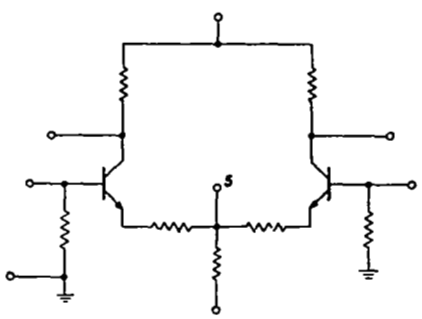

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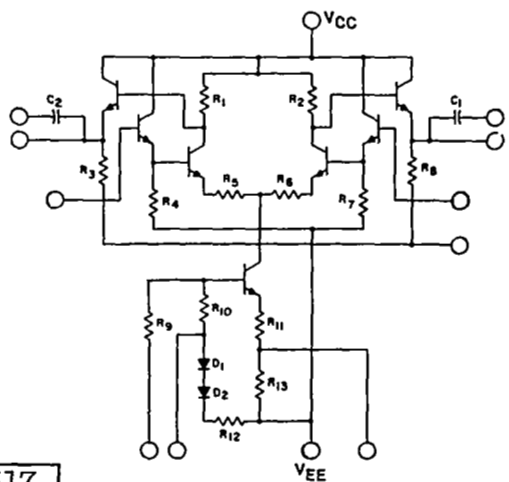

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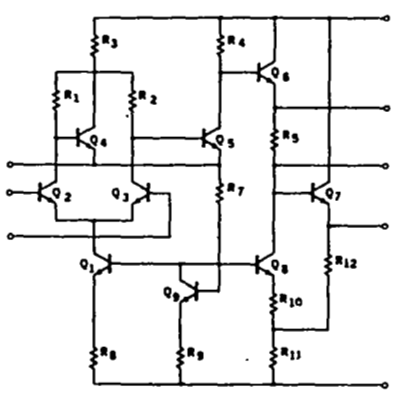

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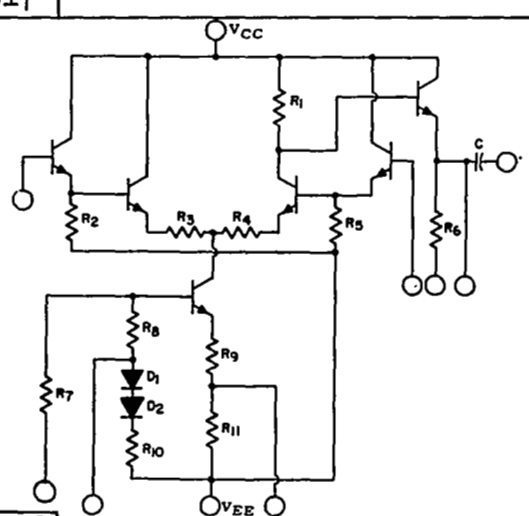

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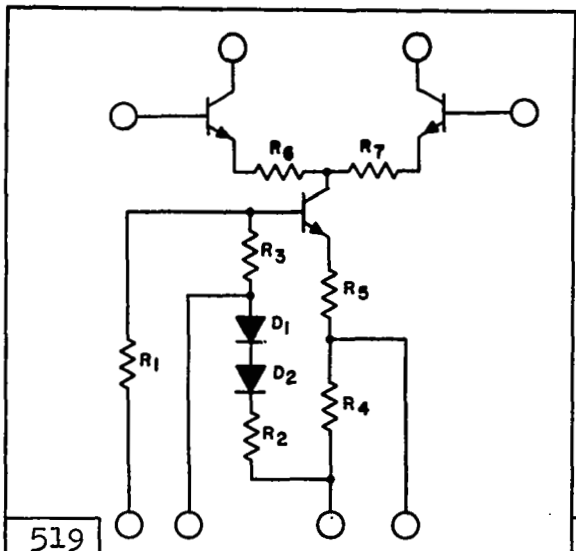

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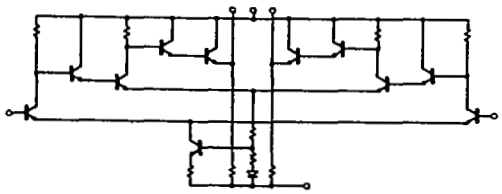

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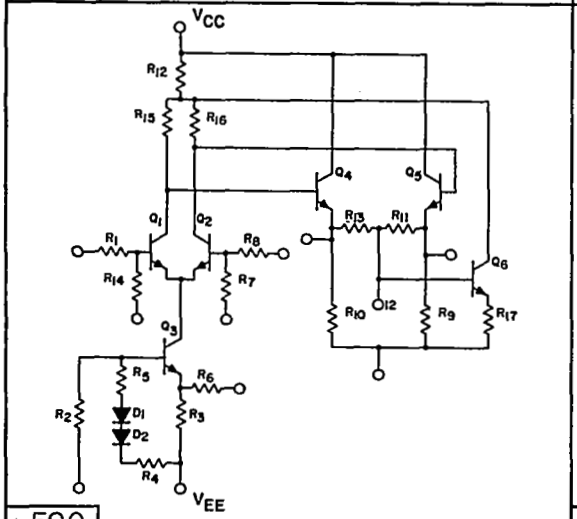

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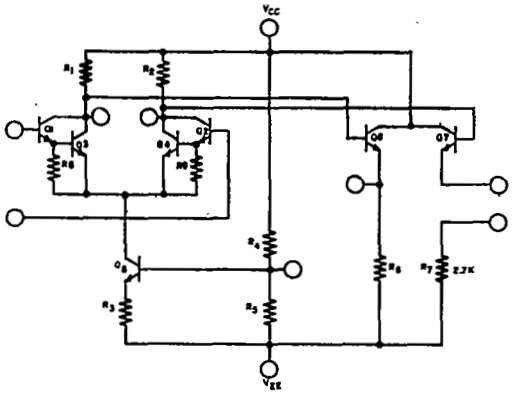

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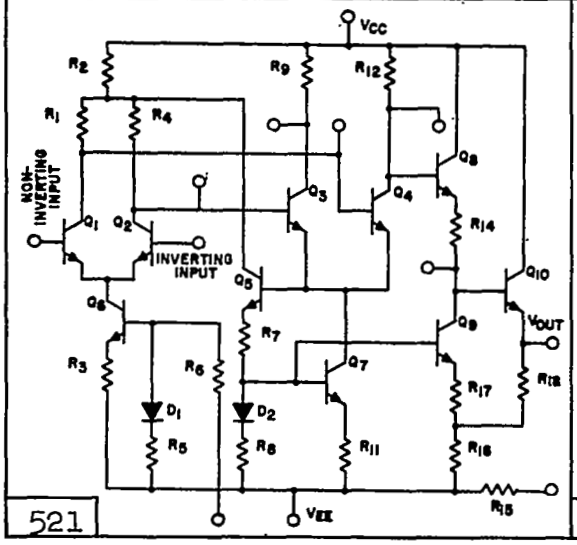

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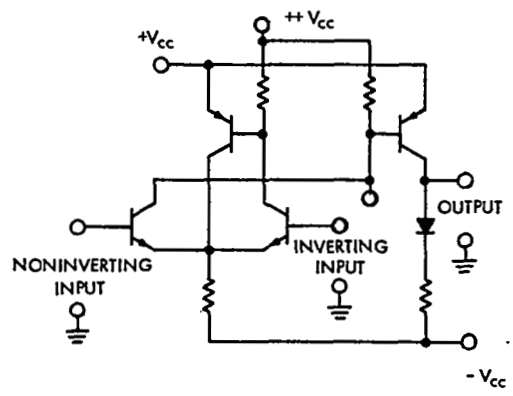

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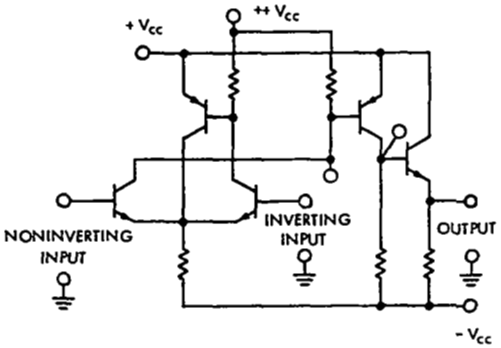

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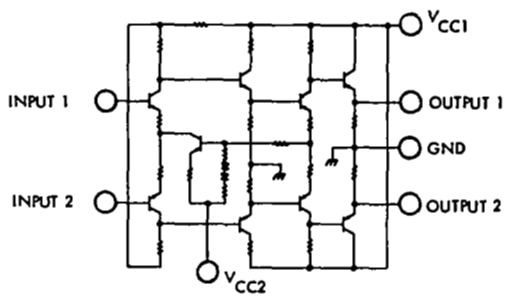

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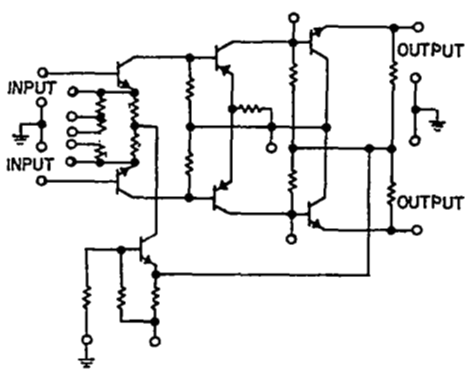

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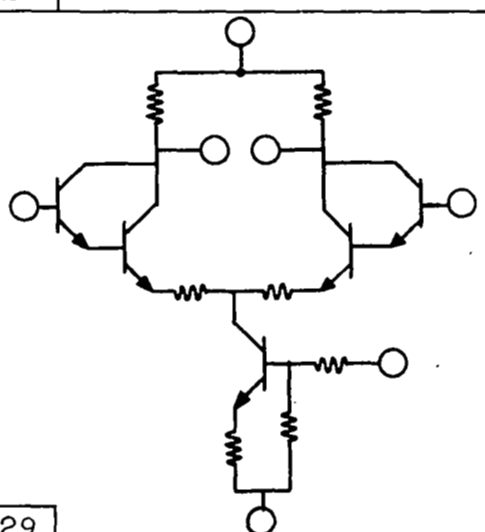

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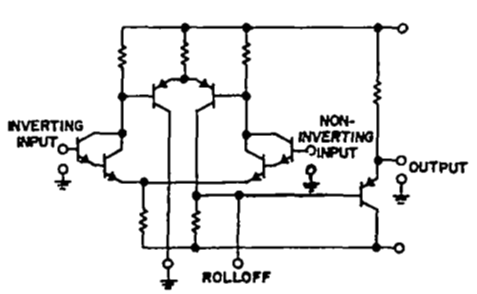

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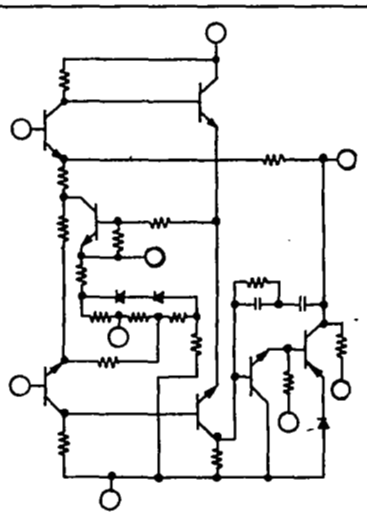

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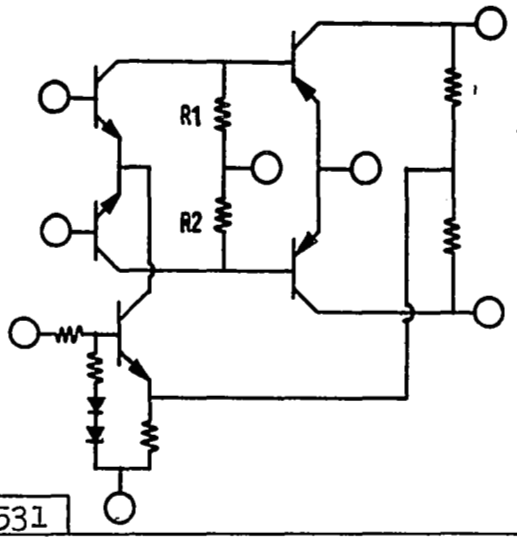

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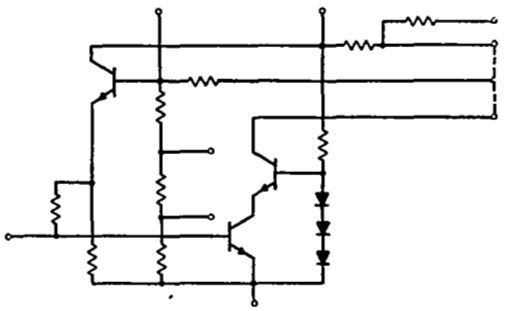

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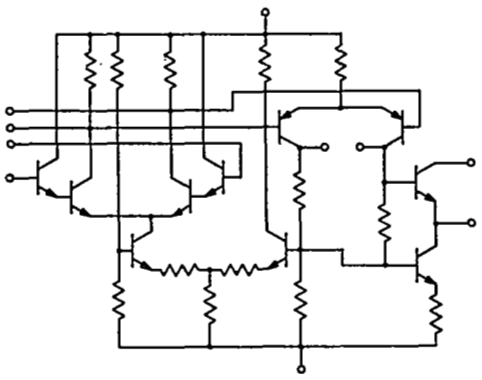

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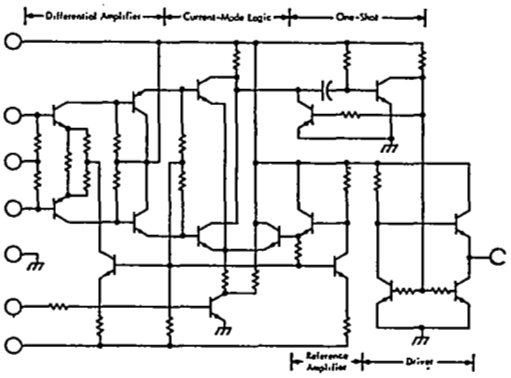

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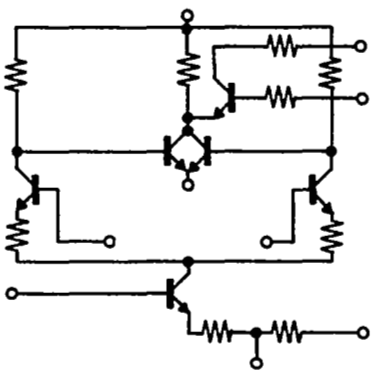

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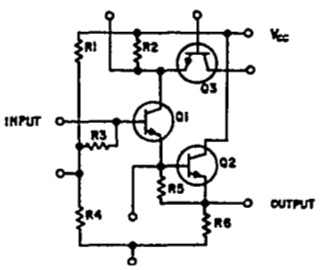

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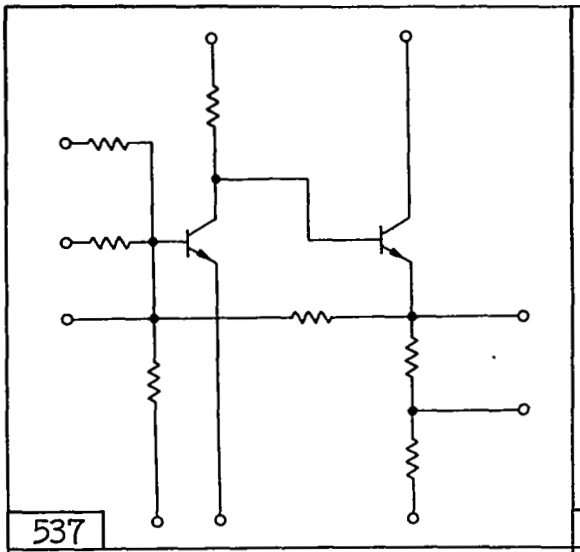

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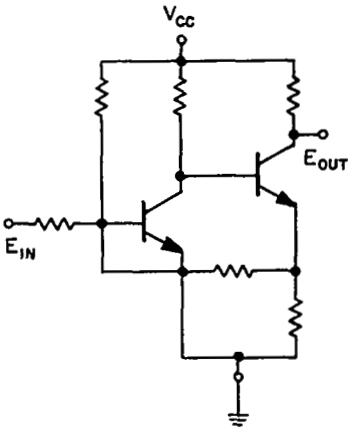

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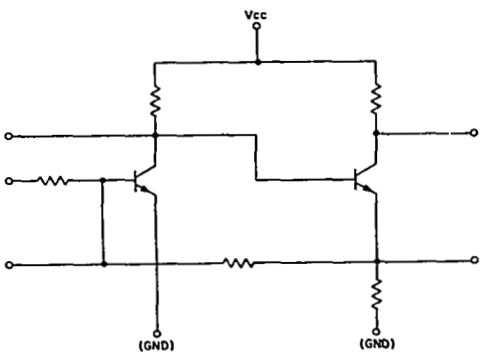

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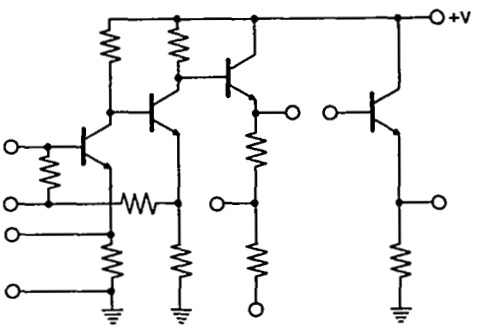

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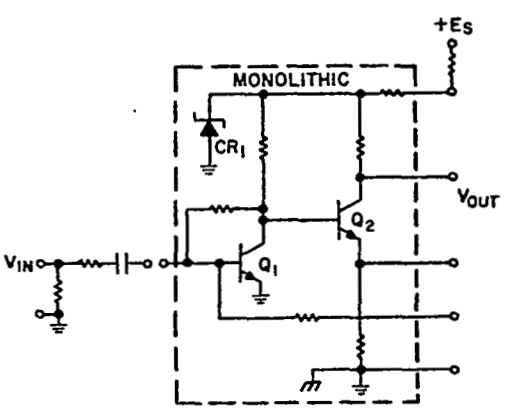

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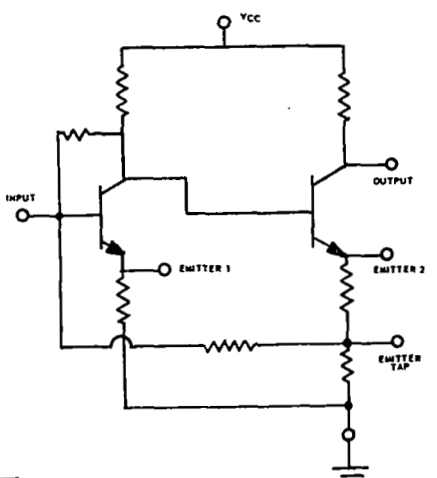

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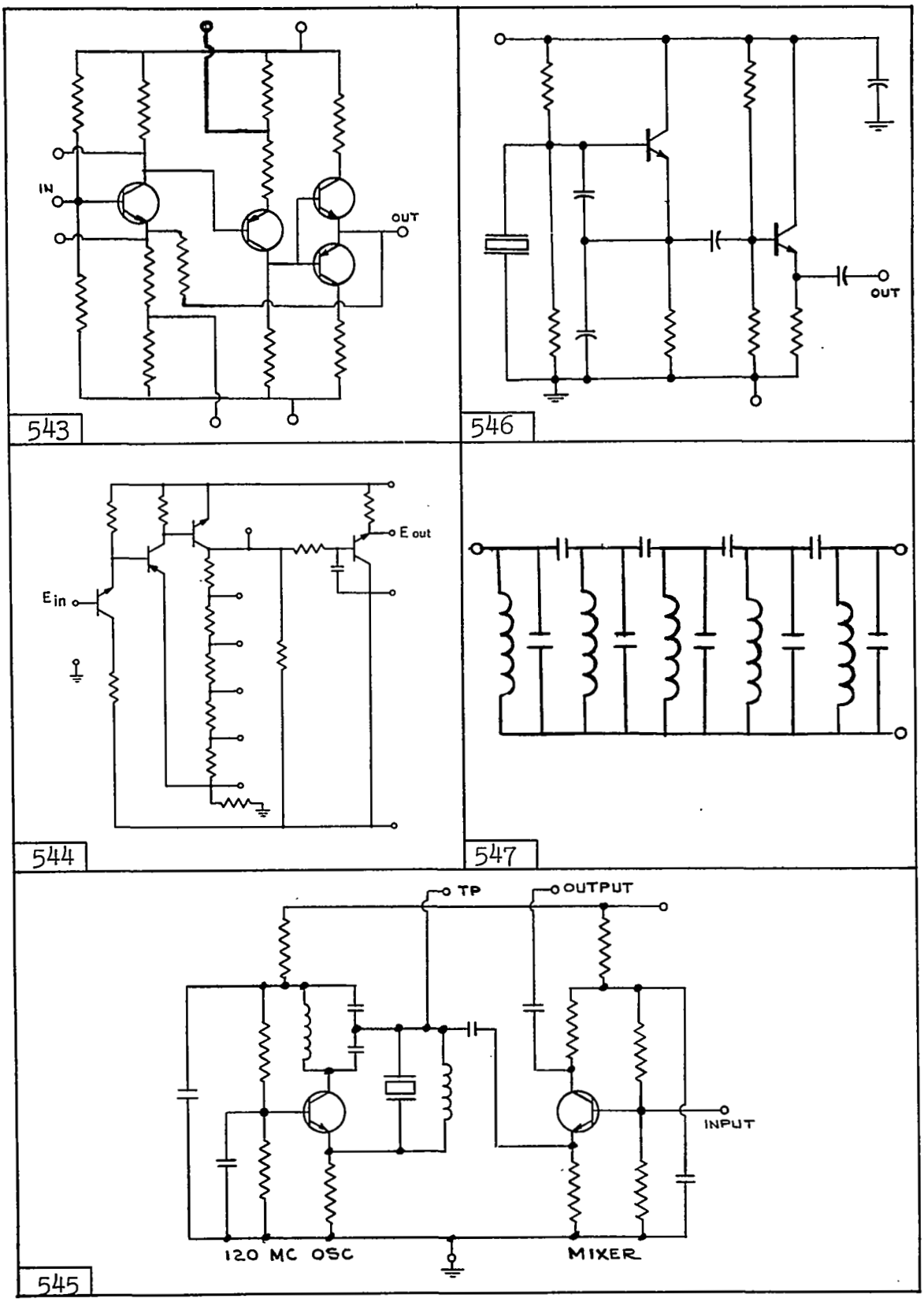
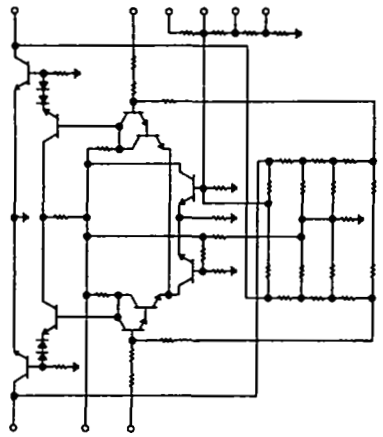

IN
OUT
543
OUT
546
E out
E in
544
547
TP
OUTPUT
INPUT
120 MC OSC
MIXER
545



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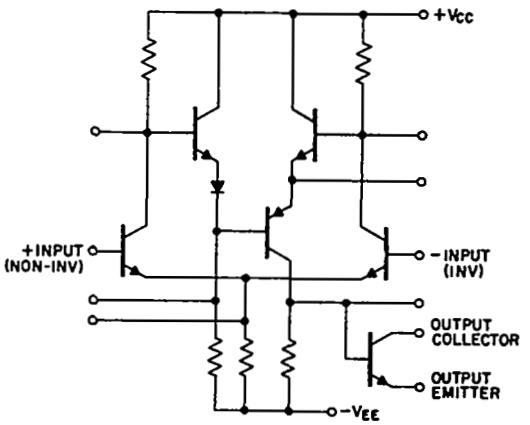

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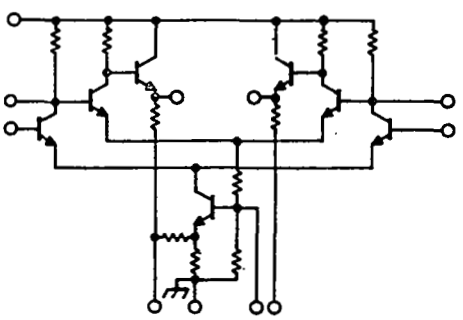

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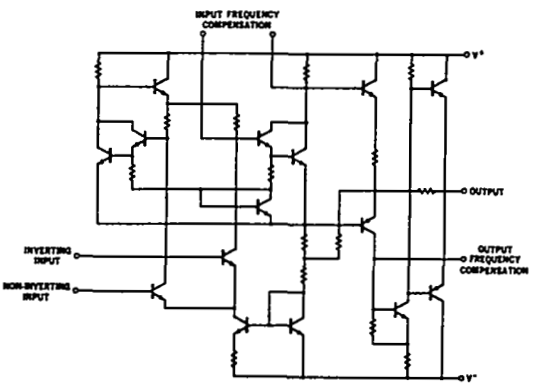

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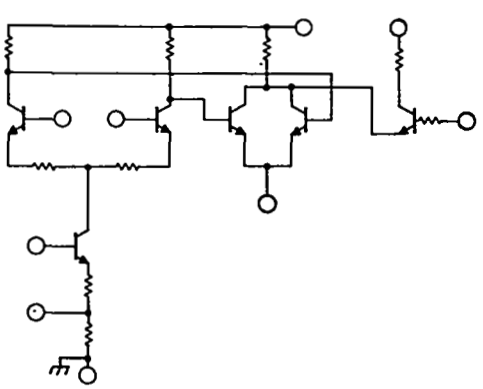

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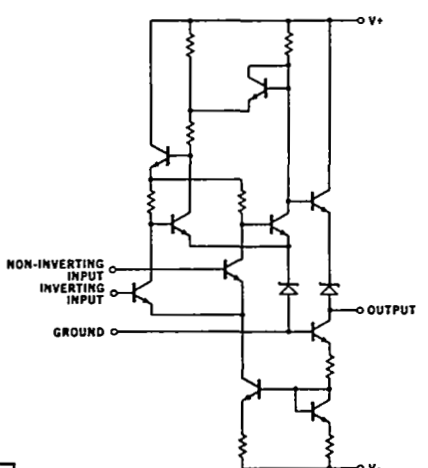

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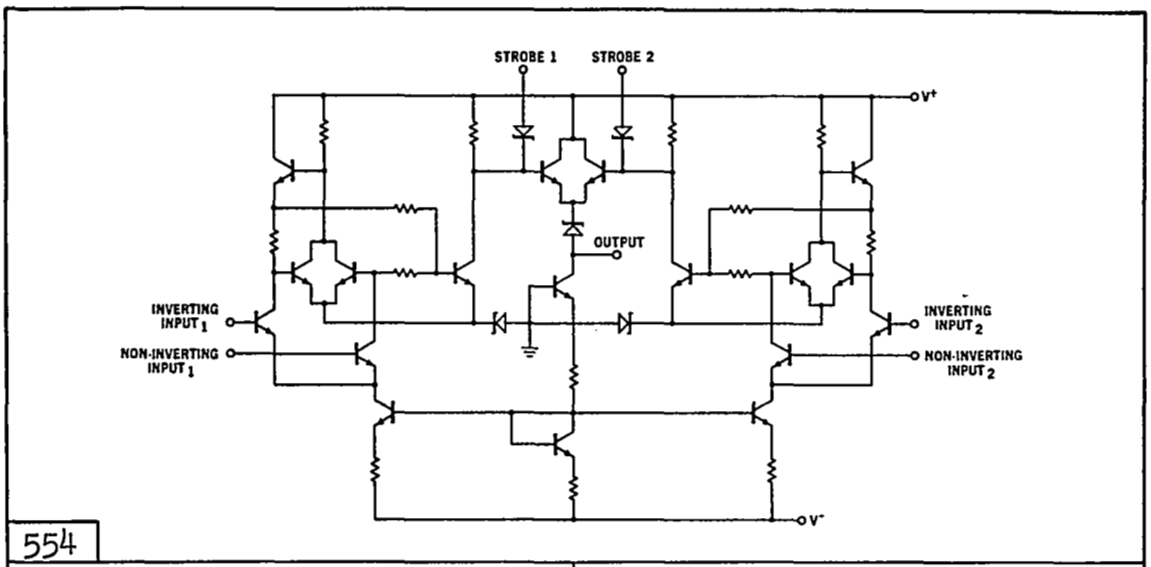

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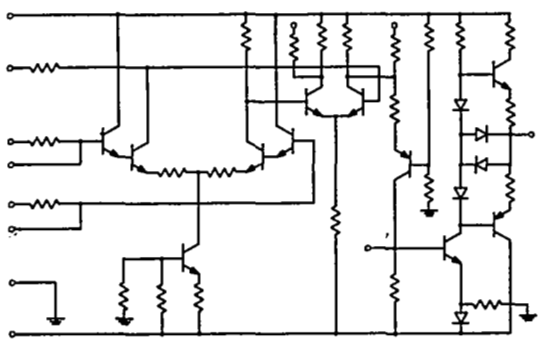

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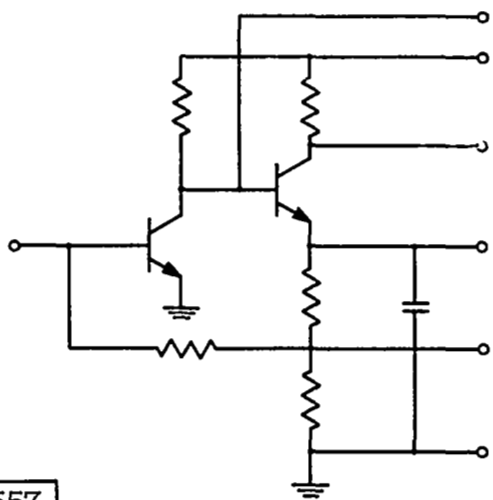

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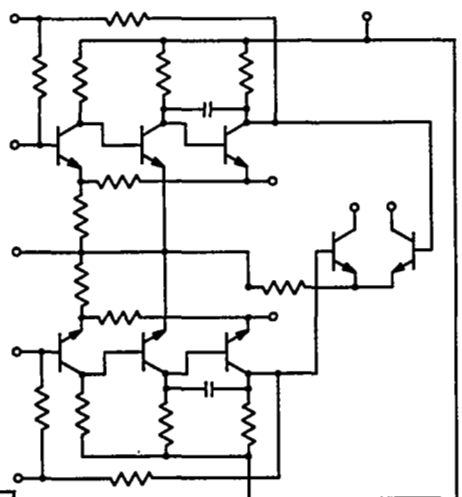

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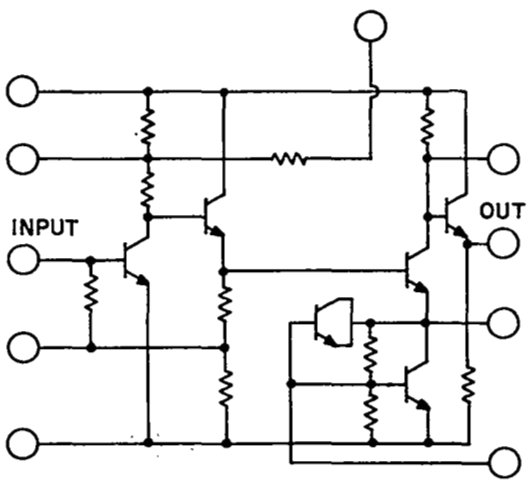

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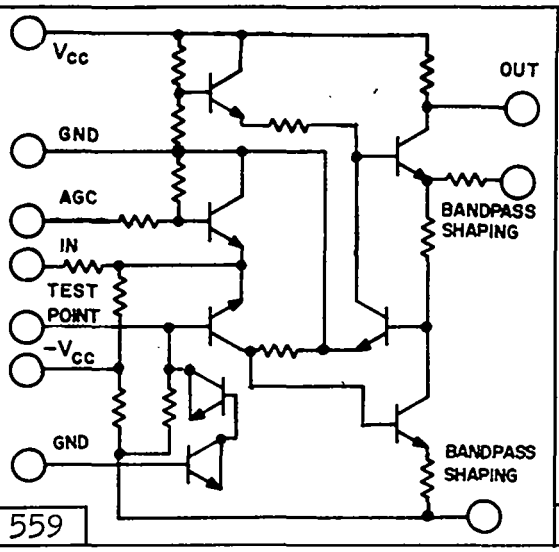

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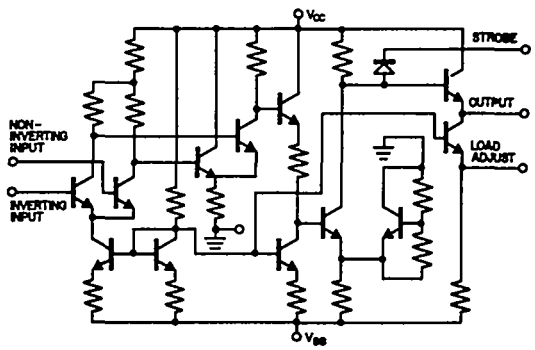

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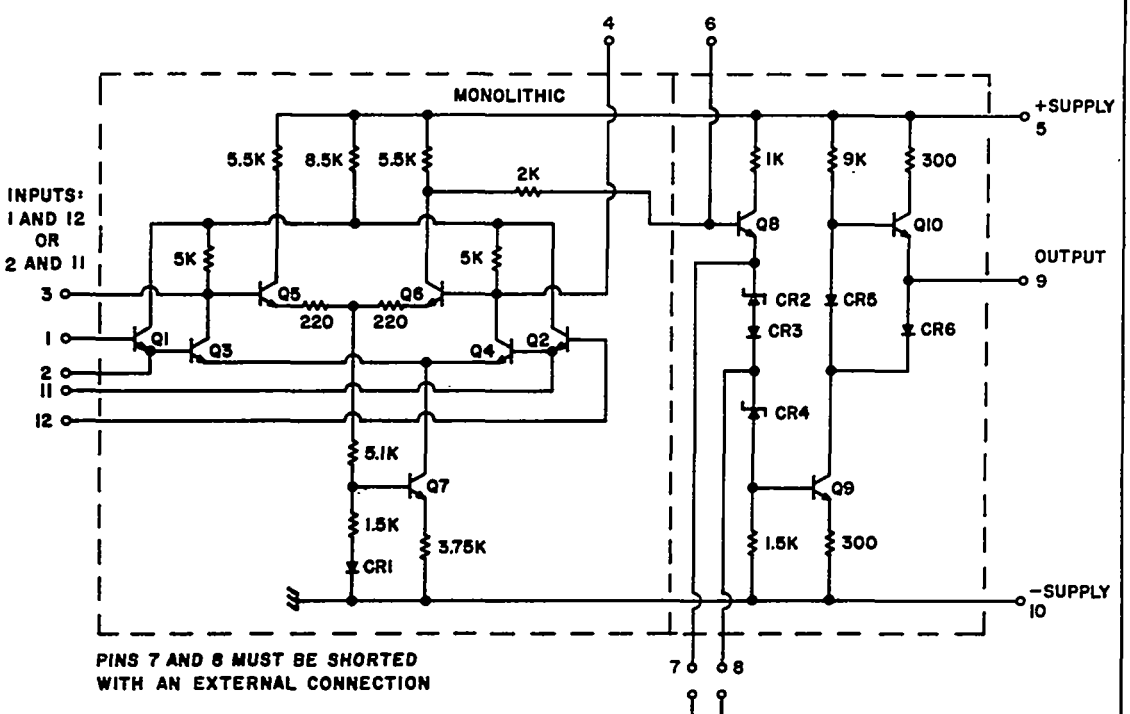

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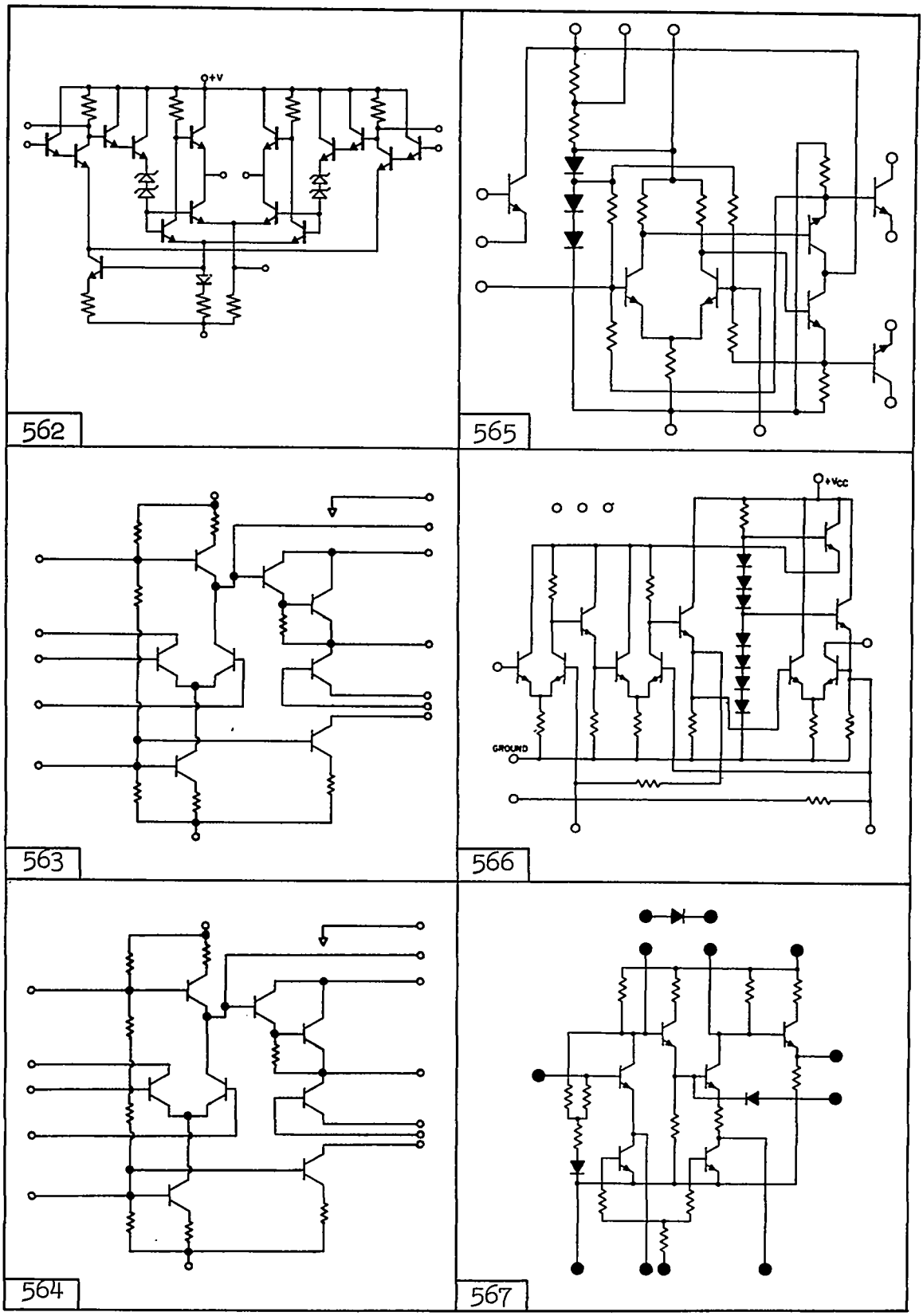
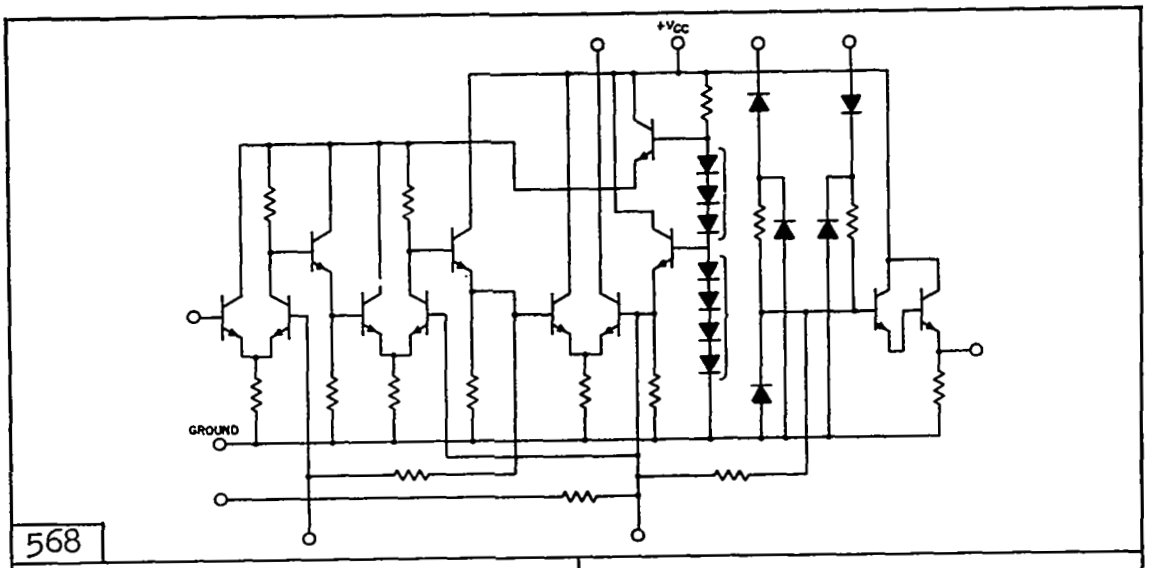
Note 1. The output stages of this amplifier operate in a class B condition. If class A operation of the output stages is desired, a 9K resistor is connected between pins 9 and 10.


+V
562
565
563
+Vcc
GROUND
566
564
567



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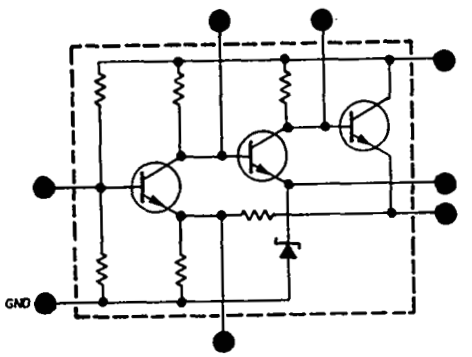

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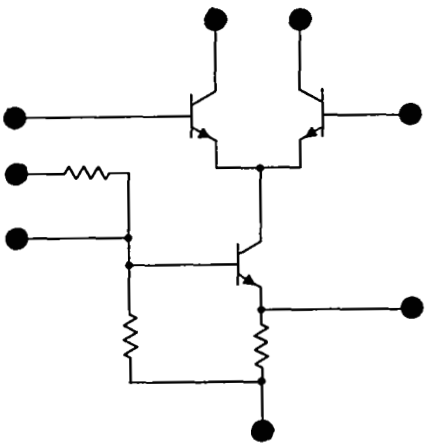

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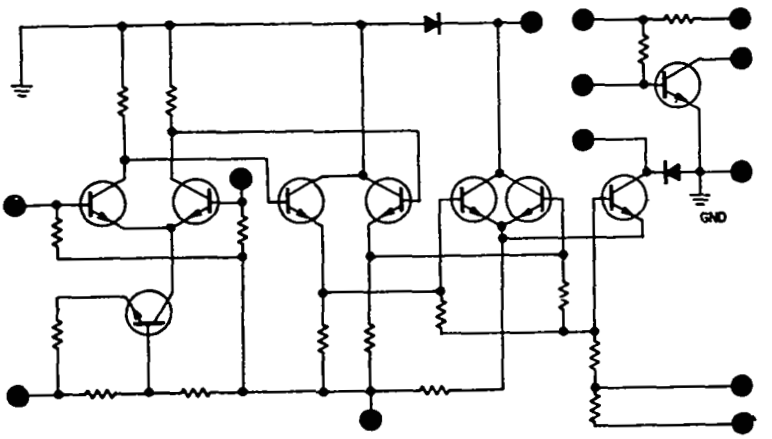

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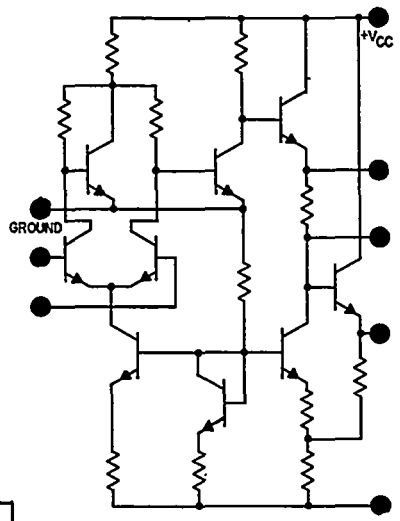

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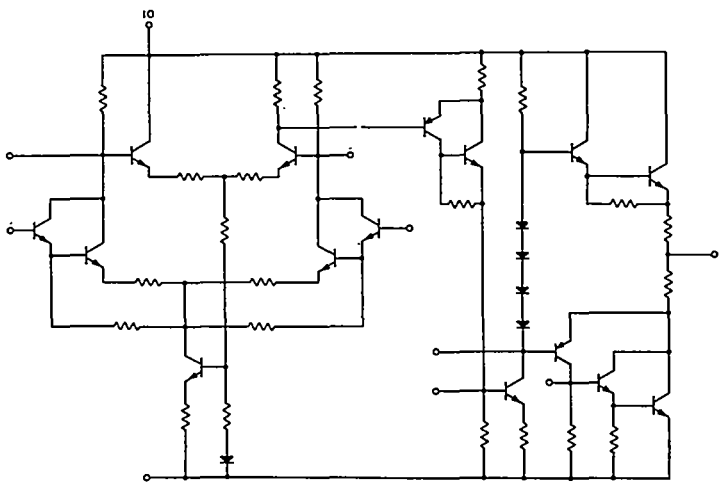

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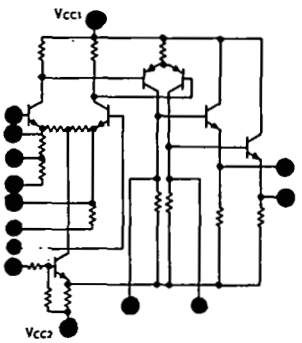

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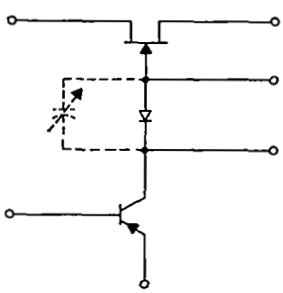

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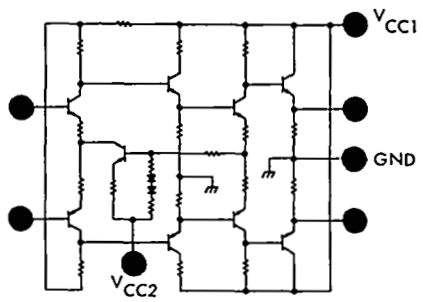

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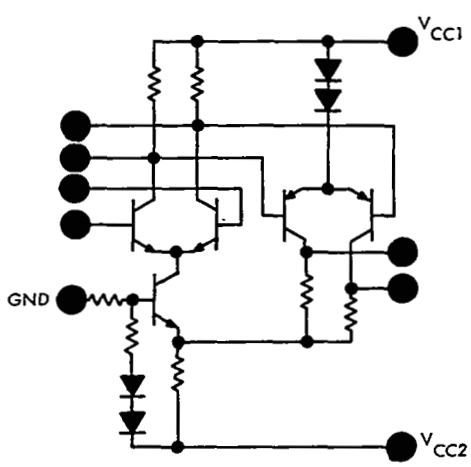

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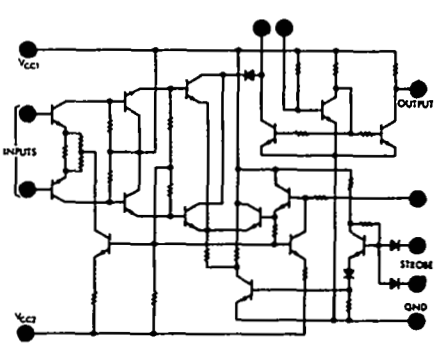

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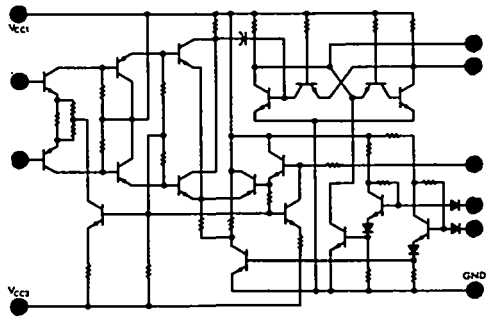

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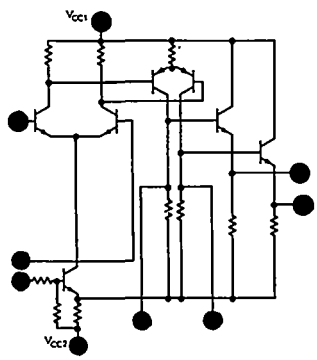

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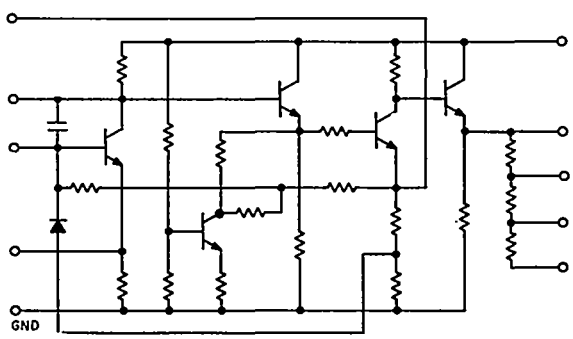

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2.6 Printout of Catalog

The complete catalog is presented in three sections -- Digital Circuits, Linear Circuits, and Digital Arrays. Each section is indexed by manufacturer's name, part number, page number, and line number.

DIGITAL CIRCUITS

MFR	MFRS PART NUMBER	PAGE NO.	LINE NO.
AMEL	101A	8	24
AMEL	101B	8	25
AMEL	101C	8	21
AMEL	102A	8	26
AMEL	102B	8	23
AMEL	102C	8	22
AMEL	116A	28	12
AMEL	116B	28	11
AMEL	116C	28	13
AMEL	121A	26	10
AMEL	121B	26	11
AMEL	121C	26	9
AMEL	122A	26	23
AMEL	122B	26	24
AMEL	122C	26	25
AMEL	123A	26	38
AMEL	123B	26	39
AMEL	123C	26	40
AMEL	124A	23	36
AMEL	124B	23	38
AMEL	124C	23	37
AMEL	125A	24	36
AMEL	125B	24	30
AMEL	125C	24	31
AMEL	126A	24	27
AMEL	126B	24	29
AMEL	126C	24	28
AMEL	128A	25	25
AMEL	128B	25	27
AMEL	128C	25	29
AMEL	131A	7	17
AMEL	131B	7	16
AMEL	131C	7	18
AMEL	132A	9	9
AMEL	132B	9	10
AMEL	132C	9	8
AMEL	142A	4	42
AMEL	142B	4	40
AMEL	142C	4	41
AMEL	301BG	8	39
AMEL	301CG	8	40
AMEL	301CJ	8	41
AMEL	311BG	9	29
AMEL	311CG	9	28
AMEL	311CJ	9	27
AMEL	321BG	27	6
AMEL	321CG	27	5
AMEL	321CJ	27	7

MFR	MFRS PART NUMBER	PAGE NO.	LINE NO.
AMEL	322BG	27	3
AMEL	322CG	27	4
AMEL	322CJ	27	2
AMEL	331BG	7	34
AMEL	331CG	7	32
AMEL	331CJ	7	33
AMEL	341BG	5	45
AMEL	341CG	5	47
AMEL	341CJ	5	46
AMEL	342BG	13	46
AMEL	342CG	13	44
AMEL	342CJ	13	45
AMEL	361BG	8	14
AMEL	361CG	8	16
AMEL	361CJ	8	15
AMEL	362BG	8	19
AMEL	362CG	8	17
AMEL	362CJ	8	18
AMEL	4002A	13	40
AMEL	4002B	13	39
AMEL	4002C	13	41
AMEL	500B	25	11
AMEL	501B	25	24
AMEL	502B	24	26
AMEL	503B	25	40
AMEL	504B	25	16
AMEL	505B	25	31
AMEL	506B	24	33
AMEL	507B	25	42
AMEL	508B	6	3
AMEL	509B	10	43
AMEL	510B	4	30
AMEL	511B	4	28
AMEL	530B	25	23
AMEL	531B	25	28
AMEL	532B	24	35
AMEL	533B	25	43
AMEL	534B	25	15
AMEL	535B	25	30
AMEL	536B	24	32
AMEL	537B	25	41
AMEL	538B	6	4
AMEL	539B	10	44
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AMEL	541B	4	32
AMEL	542B	4	33
AMEL	543B	25	18
AMEL	544B	25	19

MFR	MFRS PART NUMBER	PAGE NO.	LINE NO.
AMEL	547B	25	17
AMEL	548B	25	20
AMEL	570B	25	21
AMEL	571B	25	32
AMEL	572B	24	37
AMEL	573B	25	45
AMEL	574B	25	22
AMEL	575B	25	26
AMEL	576B	24	34
AMEL	577B	25	44
AMEL	578B	6	2
AMEL	579B	10	45
AMEL	580B	4	29
AMEL	582B	4	34
AMEL	583B	25	13
AMEL	584B	25	12
AMEL	585B	4	35
AMEL	587B	25	14
CORN	0065	27	39
CORN	0067	29	36
CORN	0094	9	19
ETI	SNX1304	1	1
FSC	CL958	5	2
FSC	CS700	15	37
FSC	CS701	15	38
FSC	CS704	30	9
FSC	CS705	3	28
FSC	CTL952	24	12
FSC	CTL953	4	2
FSC	CTL954	3	41
FSC	CTL955	4	26
FSC	CTL956	5	13
FSC	DTL930	17	48
FSC	DTL931	11	16
FSC	DTL932	18	8
FSC	DTL944	17	47
FSC	DTL945	11	9
FSC	DTL946	19	5
FSC	DTL948	11	13
FSC	DTL950	29	43
FSC	DTL951	14	14
FSC	DTL962	20	27
FSC	FL90029	8	34
FSC	FL90329	26	14
FSC	FL91029	23	43
FSC	FL91129	23	20
FSC	FL91129	27	22
FSC	FL91429	23	42

MFR	MFRS PART NUMBER	PAGE NO.	LINE NO.
FSC	FL91529	24	40
FSC	FL92129	7	10
FSC	FL92328	11	6
FSC	FL92329	11	3
FSC	FL92629	11	2
FSC	FL92729	9	13
FSC	FL93029	18	1
FSC	FL93129	11	26
FSC	FL93229	18	9
FSC	FL94429	18	2
FSC	FL94529	11	8
FSC	FL94629	19	6
FSC	FL94829	11	14
FSC	FL95029	29	44
FSC	FL95129	14	8
FSC	FL96229	20	26
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FSC	LPDT9041	16	25
FSC	LPDT9042	16	32
FSC	L900	8	31
FSC	L900C	8	30
FSC	L901	4	45
FSC	L901C	4	44
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FSC	L902C	28	19
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FSC	MWL912	5	32
FSC	MWL913	30	15
FSC	MWL921	7	9

MFR	MFRS PART NUMBER	PAGE NO.	LINE NO.
FSC	SE101	21	43
FSC	SE102	21	17
FSC	SE105	4	23
FSC	SE110	21	16
FSC	SE115	15	23
FSC	SE124	29	16
FSC	SE150	21	9
FSC	SE160	14	9
FSC	SH2100	5	11
FSC	SH2101	28	9
FSC	TTL103	16	40
FSC	TTL104	22	12
GELM	7736079	4	39
GESP	12X101	21	41
GESP	12X248	14	13
GESP	4JPA345	31	17
GESP	4JPA358	31	16
GI	MEM2001	8	11
GI	MEM4000	5	18
GI	MEM5001	8	12
GI	MEM5002	8	4
GI	MEM5003	8	6
GI	MEM5005	7	12
GI	MEM5006	8	3
GI	MEM503	26	20
GI	MEM522	25	9
GI	MEM529	28	45
GI	MEM900	24	24
GI	MEM901	14	28
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GI	NCPC16	14	5
GI	NCPC17	31	10
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GI	NCPC513	30	45
GI	NCPC8	28	17
GI	NCPC9	31	12
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GI	NC11	21	40
GI	PC10	26	47
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GI	PC18	14	4
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GI	PC402	31	15
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GI	PC504	30	47
GI	PC512	31	4
GI	PC514	30	46
GI	PC521	31	6
GI	PC523	30	48
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INTX	FFXXXXX	29	46
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INTX	GBXXXXX	5	7
INTX	GGXXXXX	28	8
INTX	MVXXXXX	13	47
INTX	STXXXXX	31	9
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ITT	M1C932	17	41
ITT	M1C936	18	41
ITT	M1C937	18	42
ITT	M1C944	17	42
ITT	M1C945	10	38
ITT	M1C946	19	1
ITT	M1C948	10	40
ITT	M1C949	19	3
ITT	M1C950	29	42
ITT	M1C951	14	1
ITT	M1C961	17	39
ITT	M1C962	20	24
ITT	M1C963	20	25
MEPC	640702	1	12
MEPC	640703	28	43
MEPC	640704	14	7
MOTA	MC1111	4	13
MOTA	MC1112	4	7
MOTA	MC1113	4	5
MOTA	MC1114	4	27
MOTA	MC1115	8	43
MOTA	MC201	21	42
MOTA	MC202	21	19
MOTA	MC203	4	19
MOTA	MC204	21	18
MOTA	MC205	21	8
MOTA	MC206	15	25
MOTA	MC207	15	42
MOTA	MC208	15	41
MOTA	MC209	29	22
MOTA	MC212	16	12

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MOTA	MC215	3	33
MOTA	MC251	21	44
MOTA	MC252	21	21
MOTA	MC253	4	20
MOTA	MC254	21	20
MOTA	MC255	21	10
MOTA	MC256	15	24
MOTA	MC257	15	40
MOTA	MC258	15	39
MOTA	MC259	30	13
MOTA	MC260	30	7
MOTA	MC262	16	9
MOTA	MC263	16	10
MOTA	MC265	3	34
MOTA	MC301	27	29
MOTA	MC301	23	28
MOTA	MC302	30	24
MOTA	MC303	5	33
MOTA	MC304	30	42
MOTA	MC305	8	9
MOTA	MC306	23	14
MOTA	MC306	27	15
MOTA	MC307	23	13
MOTA	MC307	27	16
MOTA	MC308	11	4
MOTA	MC309	23	46
MOTA	MC310	24	7
MOTA	MC311	23	48
MOTA	MC312	25	8
MOTA	MC351	27	30
MOTA	MC351	23	29
MOTA	MC352	30	23
MOTA	MC353	5	28
MOTA	MC354	30	41
MOTA	MC355	8	8
MOTA	MC356	23	16
MOTA	MC356	27	14
MOTA	MC357	23	15
MOTA	MC357	27	17
MOTA	MC358	11	5
MOTA	MC359	24	5
MOTA	MC360	24	3
MOTA	MC361	23	47
MOTA	MC362	25	5
MOTA	MC401	22	24
MOTA	MC402	17	16
MOTA	MC650	16	30
MOTA	MC651	18	17
MOTA	MC652	29	28
MOTA	MC800	8	36
MOTA	MC801	4	48
MOTA	MC802	28	23
MOTA	MC803	26	18
MOTA	MC804	5	37
MOTA	MC807	26	33
MOTA	MC814	24	14
MOTA	MC815	25	4
MOTA	MC816	10	11
MOTA	MC830F	18	29
MOTA	MC830G	15	47
MOTA	MC831F	11	40
MOTA	MC831G	10	15
MOTA	MC832F	18	25
MOTA	MC832G	16	2
MOTA	MC844F	18	28
MOTA	MC844G	16	1
MOTA	MC845F	11	36
MOTA	MC845G	10	16
MOTA	MC846	19	33
MOTA	MC848F	11	38
MOTA	MC848G	10	13
MOTA	MC862	20	45
MOTA	MC900	8	35
MOTA	MC901	5	1
MOTA	MC902	28	24
MOTA	MC903	26	19
MOTA	MC904	5	36
MOTA	MC907	26	34
MOTA	MC909	26	3
MOTA	MC910	24	6
MOTA	MC911	27	28
MOTA	MC911	23	23
MOTA	MC912	6	9
MOTA	MC913	29	11
MOTA	MC913	30	17
MOTA	MC914	24	13
MOTA	MC915	25	3
MOTA	MC916	10	12
MOTA	MC918	25	7
MOTA	MC921	7	3
MOTA	MC930F	18	27
MOTA	MC930G	15	48
MOTA	MC931F	11	39
MOTA	MC931G	10	18
MOTA	MC932F	18	24

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MOTA	MC944F	18	26
MOTA	MC944G	15	46
MOTA	MC945F	11	37
MOTA	MC945G	10	17
MOTA	MC946	19	34
MOTA	MC948F	11	35
MOTA	MC948G	10	14
MOTA	MC962	20	46
NORD	NM4002	8	38
NSC	LM100	31	18
NSC	NB1000	8	32
NSC	NB1001	4	46
NSC	NB1002	28	14
NSC	NB1003	26	15
NSC	NB1004	5	31
NSC	NB1007	26	29
NSC	NB1014	24	2
NSC	NB1015	24	42
NSC	NB1016	9	25
NSC	NB1017	26	42
NSC	NB1018	30	21
NSC	NB1019	29	40
NSC	NB1020	30	26
NSC	NB1023	28	22
NSC	NB2000	8	33
NSC	NB2001	4	47
NSC	NB2002	28	15
NSC	NB2003	26	17
NSC	NB2004	5	30
NSC	NB2007	26	28
NSC	NB2014	23	44
NSC	NB2015	24	43
NSC	NB2016	9	26
NSC	NB2017	26	41
NSC	NB2018	30	22
NSC	NB2019	29	41
NSC	NB2020	30	27
NSC	NB2023	28	21
NSC	NC1009	26	6
NSC	NC1010	24	4
NSC	NC1011	23	22
NSC	NC1011	27	24
NSC	NC1012	6	10
NSC	NC1021	7	7
NSC	NC2009	26	2
NSC	NC2010	24	1
NSC	NC2011	23	21
NSC	NC2011	27	23
NSC	NC2012	6	13
NSC	NC2021	7	8
NSC	ND030	14	35
NSC	ND046	14	42
NSC	ND062	15	1
PHIL	PL103	16	42
PHIL	PL104	22	13
PHIL	PL4G01	27	8
PHIL	PL4G02	4	37
PHIL	PL4G03	4	36
PHIL	PL4M01	12	23
PHIL	PL4S01	31	13
PHIL	PL4S02	4	38
PHIL	PL900	8	29
PHIL	PL901	4	43
PHIL	PL902	28	18
PHIL	PL903	26	16
PHIL	PL904	5	23
PHIL	PL907	26	30
PHIL	PL909	25	48
PHIL	PL910	23	45
PHIL	PL911	27	26
PHIL	PL911	23	25
PHIL	PL912	5	22
PHIL	PL913	30	14
PHIL	PL914	24	8
PHIL	PL915	24	44
PHIL	PL916	11	18
PHIL	PL921	7	6
PHIL	PL930	18	4
PHIL	PL931	11	27
PHIL	PL932	18	10
PHIL	PL939	25	2
PHIL	PL940	10	9
PHIL	PL944	18	11
PHIL	PL945	10	46
PHIL	PL946	19	7
PHIL	PL948	10	47
PHIL	PL949	19	21
PHIL	PL9600	11	46
PHIL	PL9601	10	28
PHIL	PL9602	26	8
PHIL	PL9603	25	10
PHIL	PL9604	7	15
PHIL	PL9606	4	12
PHIL	PL9608	9	22
PHIL	PL9609	24	21

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PHIL	PL9610	4	6
PHIL	PL9611	9	24
PHIL	PL962	20	38
PHIL	PL963	20	40
PHIL	PL976	26	1
PHIL	PL977	24	9
PHIL	PL978	24	45
PHIL	PL979	7	4
PHIL	PL980	27	25
PHIL	PL980	23	24
PHIL	PL981	5	25
PHIL	PL983	25	33
PHIL	PL984	30	16
PHIL	PL985	25	46
PHIL	PL9923	10	24
PHIL	PL9926	11	45
PHIL	PL9940	10	23
PHIL	PL9974	10	25
PHIL	PL9986	3	30
PHIL	PL9987	16	24
PHIL	PL9988	29	30
PHIL	134B	25	47
PHIL	134D2	23	34
PHIL	134D3	24	25
PHIL	134E	7	2
PHIL	134G	23	8
PHIL	134G	27	9
PHIL	134M	6	6
PHIL	134R	30	12
PHIL	254D3	3	25
PHIL	254G3	21	15
PHIL	254G4	21	37
PHIL	254G6	4	24
PHIL	263Q	8	42
PHIL	263Q2	18	43
PHIL	264B	29	6
PHIL	264B3	16	4
PHIL	264B4	16	35
PHIL	264DR	15	36
PHIL	264D2	15	22
PHIL	264D3	16	5
PHIL	264D4	16	38
PHIL	264D5	15	45
PHIL	264E3	16	26
PHIL	264E4	17	43
PHIL	264G9	20	22
PHIL	264JK	12	18
PHIL	264L	21	6
PHIL	264P	21	25
RAD	RD205	20	43
RAD	RD206	19	32
RAD	RD207	10	27
RAD	RD208	30	40
RAD	RD209	18	30
RAD	RD210	17	22
RAD	RD211	8	13
RAD	RD220	8	46
RAD	RD221	29	38
RAD	RD223	5	16
RAD	RD234	9	4
RAD	RD235	9	5
RAD	RD305	20	42
RAD	RD306	19	30
RAD	RD307	13	9
RAD	RD308	30	38
RAD	RD309	18	19
RAD	RD310	18	20
RAD	RD320	8	47
RAD	RD321	29	39
RAD	RD334	9	6
RAD	RD505	20	41
RAD	RD506	19	31
RAD	RD508	30	39
RAD	RD509	18	21
RAD	RD510	18	22
RAD	RD511	7	30
RAD	RD534	9	7
RAD	RD536	5	17
RAY	RM201	16	13
RAY	RM202	30	28
RAY	RM204	21	45
RAY	RM206	20	13
RAY	RM210	16	14
RAY	RM211	16	43
RAY	RM212	30	35
RAY	RM213	29	14
RAY	RM214	22	6
RAY	RM215	13	4
RAY	RM216	20	28
RAY	RM221	16	28
RAY	RM224	22	40
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RCA	CD2100	23	9
RCA	CD2100	27	11
RCA	CD2101	25	34

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RCA	CD2150	27	10
RCA	CD2150	23	11
RCA	CD2151	27	12
RCA	CD2151	23	10
RCA	CD2152	27	32
RCA	CD2152	23	31
RCA	CD2200	18	12
RCA	CD2201	19	20
RCA	CD2202	14	22
RCA	CD2203	13	6
RCA	CD2204	7	19
RCA	CD2205	1	44
SIGN	CS700	15	44
SIGN	CS701	15	43
SIGN	CS704	30	8
SIGN	CS705	3	29
SIGN	CS715	15	34
SIGN	CS716	15	35
SIGN	CS720	19	22
SIGN	CS721	20	37
SIGN	CS727	20	12
SIGN	CS729	29	45
SIGN	CS730	18	39
SIGN	LU300	7	13
SIGN	LU305	4	21
SIGN	LU306	3	26
SIGN	LU314	27	1
SIGN	LU315	24	47
SIGN	LU316	24	22
SIGN	LU320	11	20
SIGN	LU331	27	36
SIGN	LU332	27	37
SIGN	SE101	21	46
SIGN	SE102	21	23
SIGN	SE105	4	25
SIGN	SE110	21	22
SIGN	SE111	16	41
SIGN	SE112	16	27
SIGN	SE113	16	15
SIGN	SE115	15	26
SIGN	SE116	18	15
SIGN	SE124	29	12
SIGN	SE125	12	17
SIGN	SE150	21	7
SIGN	SE155	17	1
SIGN	SE156	18	5
SIGN	SE157	16	16
SIGN	SE160	14	16
SIGN	SE161	14	15
SIGN	SE170	20	39
SIGN	SE180	19	24
SIGN	SE181	9	16
SIGN	SE416	18	14
SIGN	SE424	29	37
SIGN	SE455	17	15
SIGN	SE480	19	23
SIGN	SE806	7	48
SIGN	SE808	22	38
SIGN	SE816	17	37
SIGN	SE825	12	16
SIGN	SE840	5	40
SIGN	SE855	17	38
SIGN	SE870	19	45
SIGN	SE880	21	5
SIGN	SU300	7	14
SIGN	SU305	4	22
SIGN	SU306	3	27
SIGN	SU314	26	48
SIGN	SU315	24	46
SIGN	SU316	24	23
SIGN	SU320	11	19
SIGN	SU331	27	35
SIGN	SU332	27	38
SILX	A01	21	47
SILX	A02	17	2
SILX	A03	13	3
SILX	A05	17	3
SILX	A06	21	48
SILX	A07	17	4
SILX	A08	14	12
SILX	A09	13	7
SILX	A10	21	39
SILX	A12	16	39
SILX	A13	21	38
SILX	A14	19	13
SILX	A15	19	11
SILX	A20	17	17
SILX	D111F	1	8
SILX	D112F	1	9
SILX	D113F	1	4
SILX	D119F	1	7
SILX	D120F	1	5
SILX	D121F	1	6
SILX	SC126	13	38
SILX	SI930	17	46
SILX	SI931	10	42

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SILX	SI944	17	44
SILX	SI945	10	39
SILX	SI946	19	4
SILX	SI948	10	41
SILX	SI962	20	23
SPER	900	8	37
SPER	914	24	15
SPER	915	25	6
SPER	925	24	20
SPER	926	11	32
SPRG	US-0100	29	34
SPRG	US-0101	29	31
SPRG	US-0102	26	43
SPRG	US-0103	26	44
SPRG	US-0104	25	1
SPRG	US-0105	5	35
SPRG	US-0106	24	10
SPRG	US-0106	8	28
SPRG	US-0107	5	8
SPRG	US-0108	14	18
SPRG	US-0110	29	20
SPRG	US-0111	29	21
SPRG	US-0112	25	36
SPRG	US-0113	25	35
SPRG	US-0114	26	36
SPRG	US-0114	8	45
SPRG	US-0115	26	35
SPRG	US-0115	8	44
SPRG	US-0709	26	7
SPRG	US-0710	24	18
SPRG	US-0711	27	27
SPRG	US-0711	23	26
SPRG	US-0712	5	38
SPRG	US-0713	30	18
SPRG	US-0721	7	11
SW	SWF10	28	26
SW	SWF11	28	27
SW	SWF12	28	25
SW	SWF13	28	28
SW	SWF20	29	27
SW	SWF21	29	26
SW	SWF22	29	25
SW	SWF23	29	24
SW	SWF30	30	2
SW	SWF31	29	47
SW	SWF32	29	48
SW	SWF33	30	1

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SW	SWF50	11	42
SW	SWF51	11	41
SW	SWF52	11	43
SW	SWF53	11	34
SW	SWG100	2	3
SW	SWG101	2	2
SW	SWG102	2	1
SW	SWG103	2	4
SW	SWG110	2	23
SW	SWG111	2	22
SW	SWG112	2	21
SW	SWG113	2	24
SW	SWG120	22	47
SW	SWG121	23	1
SW	SWG122	22	46
SW	SWG123	22	48
SW	SWG130	21	13
SW	SWG131	21	12
SW	SWG132	21	14
SW	SWG133	21	11
SW	SWG140	19	29
SW	SWG141	19	26
SW	SWG142	19	27
SW	SWG143	19	28
SW	SWG150	6	40
SW	SWG151	6	41
SW	SWG152	6	42
SW	SWG153	6	43
SW	SWG170	7	41
SW	SWG171	7	42
SW	SWG172	7	43
SW	SWG173	7	40
SW	SWG180	7	27
SW	SWG181	7	24
SW	SWG182	7	26
SW	SWG183	7	25
SW	SWG40	17	18
SW	SWG41	17	20
SW	SWG42	17	19
SW	SWG43	17	21
SW	SWG50	1	32
SW	SWG51	1	33
SW	SWG52	1	31
SW	SWG53	1	30
SW	SWG60	22	29
SW	SWG61	22	25
SW	SWG62	22	27
SW	SWG63	22	26

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SW	SWG91	6	16
SW	SWG92	6	14
SW	SWG93	6	15
SW	SW301	27	31
SW	SW301	23	30
SW	SW302	30	25
SW	SW303	5	39
SW	SW304	30	43
SW	SW305	8	10
SW	SW306	23	17
SW	SW306	27	19
SW	SW307	23	18
SW	SW307	27	18
SW	SW308	11	33
SW	SW309	24	19
SW	SW310	24	17
SW	SW311	24	16
SW	SW930	18	16
SW	SW931	11	30
SW	SW932	18	18
SW	SW944	18	23
SW	SW945	11	31
SW	SW946	19	25
SW	SW948	10	48
SW	SW962Y	20	44
SW	SW962Z	20	7
SYL	SF10	30	30
SYL	SF100	12	42
SYL	SF101	12	41
SYL	SF102	12	44
SYL	SF103	12	43
SYL	SF11	30	32
SYL	SF110	12	37
SYL	SF111	12	35
SYL	SF112	12	36
SYL	SF113	12	38
SYL	SF12	30	31
SYL	SF120	12	46
SYL	SF121	12	45
SYL	SF122	12	39
SYL	SF123	12	40
SYL	SF13	30	29
SYL	SF130	12	32
SYL	SF131	12	34
SYL	SF132	12	31
SYL	SF133	12	33
SYL	SF20	29	1

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SYL	SF200	9	31
SYL	SF201	9	32
SYL	SF202	9	33
SYL	SF203	9	30
SYL	SF21	28	48
SYL	SF210	13	1
SYL	SF211	12	47
SYL	SF212	12	48
SYL	SF213	13	2
SYL	SF22	28	46
SYL	SF23	28	47
SYL	SF30	30	4
SYL	SF31	30	3
SYL	SF32	30	5
SYL	SF33	30	6
SYL	SF50	11	15
SYL	SF51	11	12
SYL	SF52	11	25
SYL	SF53	11	24
SYL	SF60	10	21
SYL	SF61	10	22
SYL	SF62	10	20
SYL	SF63	10	19
SYL	SG100	1	48
SYL	SG101	1	45
SYL	SG102	1	46
SYL	SG103	1	47
SYL	SG110	2	17
SYL	SG111	2	18
SYL	SG112	2	19
SYL	SG113	2	20
SYL	SG120	22	41
SYL	SG121	22	39
SYL	SG122	22	43
SYL	SG123	22	42
SYL	SG130	17	31
SYL	SG131	17	32
SYL	SG132	17	28
SYL	SG133	17	27
SYL	SG140	19	12
SYL	SG141	19	8
SYL	SG142	19	10
SYL	SG143	19	9
SYL	SG150	27	48
SYL	SG150	6	36
SYL	SG151	28	1
SYL	SG152	28	2
SYL	SG152	6	37

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SYL	SG153	28	3
SYL	SG160	20	11
SYL	SG161	20	10
SYL	SG162	20	9
SYL	SG163	20	8
SYL	SG170	27	40
SYL	SG170	7	37
SYL	SG171	27	41
SYL	SG172	27	42
SYL	SG172	7	38
SYL	SG173	27	43
SYL	SG180	7	23
SYL	SG181	7	22
SYL	SG182	7	21
SYL	SG183	7	20
SYL	SG190	20	6
SYL	SG191	20	4
SYL	SG192	20	5
SYL	SG193	20	3
SYL	SG200	15	14
SYL	SG201	15	15
SYL	SG202	15	16
SYL	SG203	15	17
SYL	SG210	2	28
SYL	SG211	2	25
SYL	SG212	2	27
SYL	SG213	2	26
SYL	SG220	19	36
SYL	SG221	19	38
SYL	SG222	19	35
SYL	SG223	19	37
SYL	SG230	2	45
SYL	SG230	6	39
SYL	SG231	2	47
SYL	SG232	2	44
SYL	SG232	6	38
SYL	SG233	2	46
SYL	SG240	17	30
SYL	SG241	17	24
SYL	SG242	17	23
SYL	SG243	17	29
SYL	SG250	1	40
SYL	SG251	1	41
SYL	SG252	1	39
SYL	SG253	1	38
SYL	SG260	22	32
SYL	SG261	22	33
SYL	SG262	22	30
SYL	SG263	22	31
SYL	SG270	2	40
SYL	SG270	7	44
SYL	SG271	2	42
SYL	SG272	2	43
SYL	SG272	7	45
SYL	SG273	2	41
SYL	SG280	3	17
SYL	SG281	3	18
SYL	SG282	3	19
SYL	SG283	3	16
SYL	SG290	3	21
SYL	SG291	3	22
SYL	SG292	3	20
SYL	SG293	3	23
SYL	SG300	3	5
SYL	SG301	3	6
SYL	SG302	3	4
SYL	SG303	3	7
SYL	SG310	3	2
SYL	SG311	3	3
SYL	SG312	3	1
SYL	SG313	2	48
SYL	SG40	17	5
SYL	SG41	16	44
SYL	SG42	16	48
SYL	SG43	17	7
SYL	SG50	1	29
SYL	SG51	1	28
SYL	SG52	1	27
SYL	SG53	1	26
SYL	SG60	22	18
SYL	SG61	22	17
SYL	SG62	22	20
SYL	SG63	22	28
SYL	SG70	1	22
SYL	SG71	1	23
SYL	SG72	1	24
SYL	SG73	1	25
SYL	SG80	4	8
SYL	SG81	4	9
SYL	SG82	4	10
SYL	SG83	4	11
SYL	SG90	6	12
SYL	SG91	6	11
SYL	SG92	6	8
SYL	SG93	6	7
TI	SN1005	14	11

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TI	SN14206	15	4
TI	SN14210	5	15
TI	SN14213	29	10
TI	SN14215	10	36
TI	SN14216	14	23
TI	SN14224	15	18
TI	SN14226	15	3
TI	SN14227	8	1
TI	SN14231	14	33
TI	SN14236	15	2
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TI	SN14261	14	32
TI	SN14266	14	41
TI	SN14286	9	3
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TI	SN14306	15	6
TI	SN14310	5	14
TI	SN14313	29	9
TI	SN14315	10	34
TI	SN14316	14	44
TI	SN14324	15	21
TI	SN14326	15	5
TI	SN14327	8	2
TI	SN14331	14	31
TI	SN14336	14	45
TI	SN14346	14	37
TI	SN14361	14	30
TI	SN14366	14	38
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TI	SN15831	28	38
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TI	SN15832	15	10
TI	SN15832N	15	8
TI	SN15833	6	31
TI	SN15833N	7	31
TI	SN15844	15	12
TI	SN15844N	15	11
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TI	SN15845N	28	34
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TI	SN15930	14	34
TI	SN15931	28	37
TI	SN15932	15	9
TI	SN15933	6	30
TI	SN15944	15	13
TI	SN15945	28	42
TI	SN15946	14	40
TI	SN15948	28	41
TI	SN15950	28	30
TI	SN15951	13	43
TI	SN15962	14	46
TI	SN17909L	8	20
TI	SN17910L	23	35
TI	SN17911L	26	22
TI	SN17913L	5	3
TI	SN17921L	7	1
TI	SN337	28	20
TI	SN341	22	9
TI	SN343	13	20
TI	SN344	9	23
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TI	SN5101	29	18
TI	SN511	29	33
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TI	SN512	26	46
TI	SN513	26	45
TI	SN514	24	48
TI	SN515	5	27
TI	SN516	25	37
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TI	SN5161	25	39
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TI	SN517	5	10
TI	SN518	14	10
TI	SN5191	5	26
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TI	SN535	9	15
TI	SN5360	19	16
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TI	SN54H00	20	1
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TI	SN54L00R	19	47
TI	SN54L20R	18	33
TI	SN54L72R	10	31
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TI	SN5400	14	24
TI	SN5410	20	29
TI	SN5410	14	25
TI	SN5420	17	8
TI	SN5420	14	21
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TI	SN5430	22	21
TI	SN5440	17	10
TI	SN5440	14	20
TI	SN5450	6	26
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TI	SN5451	6	22
TI	SN5453	6	5
TI	SN5454	5	20
TI	SN5460	7	39
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TI	SN5473	12	24
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TI	SN7302	12	29
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TI	SN731	24	11
TI	SN7310	22	4
TI	SN7311	18	38
TI	SN732	7	5
TI	SN7320	8	7
TI	SN733	26	32
TI	SN7330	16	21
TI	SN7331	20	35
TI	SN734	5	24
TI	SN735	31	11
TI	SN7350	9	11
TI	SN7360	19	19
TI	SN7370	6	25
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TI	SN74H00	19	48
TI	SN74H20	18	36
TI	SN74H21	3	40
TI	SN74H71	9	35
TI	SN74H72	10	29
TI	SN74L00R	19	46
TI	SN74L20R	18	34
TI	SN74L71R	29	8
TI	SN74L72R	10	32
TI	SN7400	19	18
TI	SN7410	20	36
TI	SN7420	17	13
TI	SN7430	22	23
TI	SN7432	10	37
TI	SN7440	17	14
TI	SN7441N	5	12
TI	SN7450	6	28
TI	SN7451	6	23
TI	SN7453	6	29
TI	SN7454	5	21
TI	SN7460	7	36
TI	SN7470	11	28
TI	SN7473	12	26
TI	SN7474	5	5
TI	SN7476N	12	25
TI	SN74930	16	37
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TRAN	TFF3012	29	4
TRAN	TFF3013	29	2
TRAN	TFF3014	29	5
TRAN	TFF3031	29	35
TRAN	TFF3111	11	23
TRAN	TFF3112	11	21
TRAN	TFF3113	11	11
TRAN	TFF3114	11	10
TRAN	TFF3115	12	14
TRAN	TFF3116	12	11
TRAN	TFF3117	12	12
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TRAN	TFF3121	12	9
TRAN	TFF3122	12	7
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TRAN	TFF3127	11	47
TRAN	TFF3128	11	48
TRAN	TFF3131	10	26
TRAN	TFF3161	31	25
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TRAN	TFF3163	31	23
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TRAN	TFF3182	31	28
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TRAN	TFF3274	12	20
TRAN	TFF3311	10	6
TRAN	TFF3312	10	2
TRAN	TFF3313	10	7
TRAN	TFF3314	9	48
TRAN	TFF3341	10	4
TRAN	TFF3342	10	5
TRAN	TFF3343	10	1
TRAN	TFF3344	10	3
TRAN	TFF3411	9	42
TRAN	TFF3412	9	46
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TRAN	TNG3051	23	3
TRAN	TNG3052	23	5
TRAN	TNG3053	23	6
TRAN	TNG3054	23	4
TRAN	TNG3111	17	6
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TRAN	TNG3165	31	21
TRAN	TNG3166	31	22
TRAN	TNG3167	31	20
TRAN	TNG3168	31	19
TRAN	TNG3211	2	9
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TRAN	TNG3251	2	29
TRAN	TNG3252	2	31
TRAN	TNG3253	2	30
TRAN	TNG3254	2	32
TRAN	TNG3281	27	44
TRAN	TNG3282	27	45
TRAN	TNG3283	27	46
TRAN	TNG3284	27	47
TRAN	TNG3311	21	1
TRAN	TNG3312	21	4
TRAN	TNG3313	21	3
TRAN	TNG3314	21	2
TRAN	TNG3331	21	29
TRAN	TNG3341	18	44
TRAN	TNG3341	20	17
TRAN	TNG3342	18	45
TRAN	TNG3342	20	18
TRAN	TNG3343	18	46
TRAN	TNG3343	20	19
TRAN	TNG3344	18	47
TRAN	TNG3344	20	20
TRAN	TNG3411	19	44
TRAN	TNG3412	19	43
TRAN	TNG3413	19	41
TRAN	TNG3414	19	42
TRAN	TNG3431	21	30
TRAN	TNG3511	7	29
TRAN	TNG3512	7	28
TRAN	TNG4011	7	46
TRAN	TNG4012	7	47
TRAN	TNG4031	8	5
TRAN	TNG4041	6	32
TRAN	TNG4042	6	33
TRAN	TNG4131	21	24
TRAN	TNG4211	1	17
TRAN	TNG4212	1	19
TRAN	TNG4213	1	20
TRAN	TNG4214	1	18
TRAN	TNG4241	5	42
TRAN	TNG4242	5	43
TRAN	TNG4243	5	44
TRAN	TNG4244	5	41
TRAN	TNG4251	1	13
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TRAN	TNG4318	2	5
TRAN	TNG4411	3	8
TRAN	TNG4412	3	14
TRAN	TNG4413	3	11
TRAN	TNG4414	3	15
TRAN	TNG4415	1	37
TRAN	TNG4416	1	36
TRAN	TNG4417	1	34
TRAN	TNG4418	1	35
TRAN	TNG4441	3	9
TRAN	TNG4442	3	12
TRAN	TNG4443	3	13
TRAN	TNG4444	3	10
TRAN	TNG4445	28	4
TRAN	TNG4446	28	6
TRAN	TNG4447	28	7
TRAN	TNG4448	28	5
TRAN	TNG4511	1	43
TRAN	TNG4512	1	42
TRAN	TNG4541	6	34
TRAN	TNG4542	6	35
TRAN	TNG4611	6	21
TRAN	TNG4612	6	19
TRAN	TNG4613	6	18
TRAN	TNG4614	6	20
TRAN	TNG5121	21	33
TRAN	TNG5122	21	35
TRAN	TNG5123	21	34
TRAN	TNG5124	21	32
TRAN	TNG5125	13	34
TRAN	TNG5126	13	35
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TRAN	TNG5211	13	29
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TRAN	TNG5325	13	15
TRAN	TNG5326	13	14
TRAN	TNG5411	13	11
TRAN	TNG5412	13	10
TRAN	TNG5421	15	28
TRAN	TNG5421	13	16
TRAN	TNG5422	15	29
TRAN	TNG5422	13	17
TRAN	TNG5511	13	33
TRAN	TNG5512	13	30
TRAN	TNG5513	13	31
TRAN	TNG5514	13	32
TRAN	TNG5611	13	12
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TRAN	TNG6221	3	37
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TRAN	TNG6251	3	44
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TRAN	TNG6253	3	45
TRAN	TNG6254	3	46
TRAN	TNG6261	3	31
TRAN	TNG6262	3	35
TRAN	TNG6263	3	32
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TRAN	TNG6521	4	14
TRAN	TNG6522	4	16
TRAN	TNG6523	4	15
TRAN	TNG6524	4	17
TRAN	TNG7251	2	37
TRAN	TNG7252	1	11
TRAN	TNG7253	2	38
TRAN	TNG7254	2	36
TRAN	TNG7711	6	46
TRAN	TNG7712	6	44
TRAN	TNG7811	6	48
TRAN	TNG7812	6	45
TRAN	TNG7911	6	47
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VARO	8208	4	1
VARO	8209	4	4
VARO	8210	3	48
VARO	8213	5	6
VARO	8214	22	3
WMED	WC201	16	22
WMED	WC202	30	34
WMED	WC204	22	2
WMED	WC206	20	2
WMED	WC208	13	24
WMED	WC210	16	23
WMED	WC211	17	25
WMED	WC212	30	37
WMED	WC213	29	29
WMED	WC214	22	8
WMED	WC215	13	8
WMED	WC216	20	47
WMED	WC221	16	31
WMED	WC224	23	2
WMED	WC226	20	16
WMED	WC231	18	32
WMED	WC236	20	48
WMED	WC241	17	26
WMED	WC246	19	39
WMED	WC261	18	31
WMED	WC266	19	40
WMED	WC286	9	20
WMED	WC296	9	21
WMED	WM201	16	19
WMED	WM202	30	33
WMED	WM204	22	1
WMED	WM206	20	14
WMED	WM208	13	22
WMED	WM210	16	6
WMED	WM211	17	9
WMED	WM212	30	36
WMED	WM213	29	15
WMED	WM214	22	7
WMED	WM215	13	5
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WMED	WM231	18	6
WMED	WM234	22	45
WMED	WM236	20	32
WMED	WM241	17	11
WMED	WM246	19	15
WMED	WM261	18	7
WMED	WM266	19	17
WMED	WM286	9	18
WMED	WM296	9	17
WMED	WM503	11	22
WMED	WM506	20	30
WMED	WM510	18	40
WMED	WM556	20	33
WMED	WM701	17	12
WMED	WM704	22	22
WMED	WS150	13	23
WMED	WS151	5	19
WMED	WS371	23	12
WMED	WS371	27	13
WMED	WS374	23	32
WMED	WS374	27	33
WMED	WS810	2	33
WMED	WS811	16	20
WMED	WS812	2	35
WMED	WS813	1	10
WMED	WS814	2	34
WMED	WS815	13	21
WMED	WS817	16	7
WMED	WS840	14	17

CIRCUIT DESCRIPTION	MFR	MFRS PART NUMBER	T E C H	TYPE OF LOG- IC	OPER TEMP CENTGRDE MIN	MAX	SUPPLY VOLTAGE VDC NO. 2	NO. 1	PWR DIS MW	FAN- OUT	INPUT THRESHOLD VOLTS ZERO	ONE	NOISE IMMU- NITY VOLTS	DELAY NANO- SECS	OPER- ATING SPEED MHZ	OUTPUT LEVEL ZERO	ONE	PACK- AGE TYPE	SCHE- MATIC NO.
AMP,OPTOELECTRONIC,PLSE	TI	SNX1304			-55	125		6.0	20					250				T	
AMPLIFIER,DUAL PULSE	VARO	8202	E	DTL	-55	125	C 3.0	-3.0	171	4	.50	3.00		10		.50	3.50	72	101
AMPLIFIER,PULSE	VARO	8201	E	DTL	-55	125	C 3.0	-3.0	171	4	.50	3.00		10		.50	3.50	72	101
ANALOG GATE DRIVER	SILX	D113F	A		-55	125	-20.0	10.0										F	339
ANALOG GATE DRIVER	SILX	D120F	A		-55	125	-20.0	10.0										F	338
ANALOG GATE DRIVER	SILX	D121F	A		-55	125	-20.0	10.0										F	339
ANALOG GATE DRIVER	SILX	D119F	A		-55	125	-20.0	10.0										F	337
ANALOG GATE DRIVER	SILX	D111F	A		-55	125	-20.0	10.0										F	337
ANALOG GATE DRIVER	SILX	D112F	A		-55	125	-20.0	10.0										F	338
AND-NAND,DUAL 1-2 INPUT	WHED	WS813	A	DTL	0	125		4.0	10	10	.70	1.75	.25			.45	2.50	S	102
AND-NAND,DUAL2-2 INP EX	TRAN	TNG7252	B	TTL	0	75		5.0	40	15	1.20	1.80	.80	* 18		.40	3.10	47,H	286
AND-NAND,4 INPUT	MEPC	640702	E	DTL	-55	125	6.0	-3.0		5				10	10	.60		60	
AND-NOR,DUAL 2-3 INP EX	TRAN	TNG4251	B	TTL	-55	125		5.0		15	1.20	1.70	.70	* 18		.45	2.40	47,H	105
AND-NOR,DUAL 2-3 INP EX	TRAN	TNG4253	B	TTL	-55	125		5.0		7	1.20	1.70	.70	* 18		.45	2.40	47,H	105
AND-NOR,DUAL 2-3 INP EX	TRAN	TNG4252	B	TTL	0	75		5.0		15	1.20	1.70	.70	* 18		.45	2.40	47,H	105
AND-NOR,DUAL 2-3 INP EX	TRAN	TNG4254	B	TTL	0	75		5.0		7	1.20	1.70	.70	* 18		.45	2.40	47,H	105
AND-NOR,DUAL 2-3 INPUT	TRAN	TNG4211	B	TTL	-55	125		5.0		15	1.20	1.70	.70	* 18		.45	2.40	47,H	105
AND-NOR,DUAL 2-3 INPUT	TRAN	TNG4214	B	TTL	0	75		5.0		7	1.20	1.70	.70	* 18		.45	2.40	47,H	105
AND-NOR,DUAL 2-3 INPUT	TRAN	TNG4212	B	TTL	0	75		5.0		15	1.20	1.70	.70	* 18		.45	2.40	47,H	105
AND-NOR,DUAL 2-3 INPUT	TRAN	TNG4213	B	TTL	-55	125		5.0		7	1.20	1.70	.70	* 18		.45	2.40	47,H	105
AND-NOR,2-2 INPUT	TRAN	TNG3231	B	TTL	15	55		5.0		7	1.00	2.00	.50	* 25		.50	2.50	47,H	105
AND-NOR,2-2-2 INPUT EX	SYL	SG70	A	TTL	-55	125		5.0	20	15	1.20	1.70	.90	12	20	.40	3.20	H,G	317
AND-NOR,2-2-2 INPUT EX	SYL	SG71	A	TTL	-55	125		5.0	20	7	1.20	1.70	.90	12	20	.40	3.20	H,G	317
AND-NOR,2-2-2 INPUT EX	SYL	SG72	A	TTL	0	75		5.0	20	12	1.20	1.80	.90	12	20	.40	3.10	H,G	317
AND-NOR,2-2-2 INPUT EX	SYL	SG73	A	TTL	0	75		5.0	20	6	1.20	1.80	.90	12	20	.40	3.10	H,G	317
AND-NOR,2-2-2-3 INP EX	SYL	SG53	B	TTL	0	75		5.0	30	6	1.20	1.80	.80	12	20	.40	3.10	G,H	105
AND-NOR,2-2-2-3 INP EX	SYL	SG52	B	TTL	0	75		5.0	30	12	1.20	1.80	.80	12	20	.40	3.10	G,H	105
AND-NOR,2-2-2-3 INP EX	SYL	SG51	B	TTL	-55	125		5.0	30	7	1.20	1.70	.80	12	20	.40	3.20	G,H	105
AND-NOR,2-2-2-3 INP EX	SYL	SG50	B	TTL	-55	125		5.0	30	15	1.20	1.70	.80	12	20	.40	3.20	G,H	105
AND-NOR,2-2-2-3 INP EX	SW	SWG53	A	TTL	0	75		5.0	20	6				14	20			19,C	105
AND-NOR,2-2-2-3 INP EX	SW	SWG52	A	TTL	0	75		5.0	20	12				14	20			19,C	105
AND-NOR,2-2-2-3 INP EX	SW	SWG50	A	TTL	-55	125		5.0	20	15				14	20			19,C	105
AND-NOR,2-2-2-3 INP EX	SW	SWG51	A	TTL	-55	125		5.0	20	7				14	20			19,C	105
AND-NOR,2-2-2-3 INP EX	TRAN	TNG4417	B	TTL	-55	125		5.0		7	1.20	1.70	.70	* 18		.45	2.40	47,H	105
AND-NOR,2-2-2-3 INP EX	TRAN	TNG4418	B	TTL	0	75		5.0		7	1.20	1.70	.70	* 18		.45	2.40	47,H	105
AND-NOR,2-2-2-3 INP EX	TRAN	TNG4416	B	TTL	0	75		5.0		15	1.20	1.70	.70	* 18		.45	2.40	47,H	105
AND-NOR,2-2-2-3 INP EX	TRAN	TNG4415	B	TTL	-55	125		5.0		15	1.20	1.70	.70	* 18		.45	2.40	47,H	105
AND-NOR,2-2-2-3 INP EX	SYL	SG253	B	TTL	0	75		5.0	43	5	1.10	1.70	.75	8		.45	3.00	G,H	272
AND-NOR,2-2-2-3 INP EX	SYL	SG252	B	TTL	0	75		5.0	43	9	1.10	1.70	.75	8		.45	3.00	G,H	272
AND-NOR,2-2-2-3 INP EX	SYL	SG250	B	TTL	-55	125		5.0	43	11	1.10	1.70	.75	8		.45	3.00	G,H	272
AND-NOR,2-2-2-3 INP EX	SYL	SG251	B	TTL	-55	125		5.0	43	6	1.10	1.70	.75	8		.45	3.00	G,H	272
AND-NOR,2-2-3-3 INPUT	TRAN	TNG4512	B	TTL	0	75		5.0			1.20	1.70		* 18				47,H	258
AND-NOR,2-2-3-3 INPUT	TRAN	TNG4511	B	TTL	-55	125		5.0			1.20	1.70		* 18				47,H	258
AND-NOR,3-3 INPUT EX	RCA	CD2205	A	DTL	-55	125		4.0	5	* 6	.85	1.80	.60	70		.25	3.23	82	331
AND-NOR,3-3-3 INPUT EX	SYL	SG101	B	TTL	-55	125		5.0	60	7	1.20	1.70	.80	12		.40	3.20	G,H	105
AND-NOR,3-3-3 INPUT EX	SYL	SG102	B	TTL	0	75		5.0	23	12	1.20	1.80	.80	12	20	.40	3.10	G,H	105
AND-NOR,3-3-3 INPUT EX	SYL	SG103	B	TTL	0	75		5.0	23	6	1.20	1.80	.80	12	20	.40	3.10	G,H	105
AND-NOR,3-3-3 INPUT EX	SYL	SG100	B	TTL	-55	125		5.0	60	15	1.20	1.70	.80	12		.40	3.20	G,H	105

CIRCUIT DESCRIPTION	MFR	MFRS PART NUMBER	T E C H	TYPE OF LOG- IC	OPER TEMP CENTGRDE MIN	MAX	SUPPLY VOLTAGE VDC NO. 2	NO. 1	PWR DIS MW	FAN- OUT	INPUT THRESHOLD VOLTS ZERO	ONE	NOISE IMMU- NITY VOLTS	DELAY NANO- SECS	OPER- ATING SPEED MHZ	OUTPUT LEVEL ZERO	ONE	PACK- AGE TYPE	SCHE- MATIC NO.
AND-NOR,3-3-3 INPUT EX	SW	SWG102	A	TTL	0	75		5.0	25	12				15	20			19,C	105
AND-NOR,3-3-3 INPUT EX	SW	SWG101	A	TTL	-55	125		5.0	25	7				15	20			19,C	105
AND-NOR,3-3-3 INPUT EX	SW	SWG100	A	TTL	-55	125		5.0	25	15				15	20			19,C	105
AND-NOR,3-3-3 INPUT EX	SW	SWG103	A	TTL	0	75		5.0	25	6				15	20			19,C	105
AND-NOR,3-3-3 INPUT EX	TRAN	TNG4318	B	TTL	0	75		5.0		7	1.20	1.70	.70	* 18		.45	2.40	47,H	105
AND-NOR,3-3-3 INPUT EX	TRAN	TNG4316	B	TTL	0	75		5.0		15	1.20	1.70	.70	* 18		.45	2.40	47,H	105
AND-NOR,3-3-3 INPUT EX	TRAN	TNG4317	B	TTL	-55	125		5.0		7	1.20	1.70	.70	* 18		.45	2.40	47,H	105
AND-NOR,3-3-3 INPUT EX	TRAN	TNG4315	B	TTL	-55	125		5.0		15	1.20	1.70	.70	* 18		.45	2.40	47,H	105
AND-NOR,4-4 INPUT	TRAN	TNG3211	B	TTL	-55	125		5.0		* 20	1.20	1.70	.70	* 18		.45	2.40	47,H	105
AND-NOR,4-4 INPUT	TRAN	TNG3212	B	TTL	0	75		5.0		* 20	1.20	1.70	.70	* 18		.45	2.40	47,H	105
AND-NOR,4-4 INPUT	TRAN	TNG3213	B	TTL	-55	125		5.0		* 7	1.20	1.70	.70	* 18		.45	2.40	47,H	105
AND-NOR,4-4 INPUT	TRAN	TNG3214	B	TTL	0	75		5.0		* 7	1.20	1.70	.70	* 18		.45	2.40	47,H	105
AND-NOR,4-4 INPUT	TRAN	TNG3243	B	TTL	-55	125		5.0		7	1.20	1.70	.70	* 10		.45	2.40	47,H	105
AND-NOR,4-4 INPUT	TRAN	TNG3244	B	TTL	0	75		5.0		7	1.20	1.70	.70	* 10		.45	2.40	47,H	105
AND-NOR,4-4 INPUT	TRAN	TNG3242	B	TTL	0	75		5.0		15	1.20	1.70	.70	* 10		.45	2.40	47,H	105
AND-NOR,4-4 INPUT	TRAN	TNG3241	B	TTL	-55	125		5.0		15	1.20	1.70	.70	* 10		.45	2.40	47,H	105
AND-NOR,4-4 INPUT EX	SYL	SG110	B	TTL	-55	125		5.0	20	15	1.20	1.70	.80	12	20	.40	3.20	G,H	105
AND-NOR,4-4 INPUT EX	SYL	SGE11	B	TTL	-55	125		5.0	20	7	1.20	1.70	.80	12	20	.40	3.20	G,H	105
AND-NOR,4-4 INPUT EX	SYL	SGE12	B	TTL	0	75		5.0	20	12	1.20	1.80	.80	12	20	.40	3.10	G,H	105
AND-NOR,4-4 INPUT EX	SYL	SG113	B	TTL	0	75		5.0	20	6	1.20	1.80	.80	12	20	.40	3.10	G,H	105
AND-NOR,4-4 INPUT EX	SW	SWG112	A	TTL	0	75		5.0	20	12				13	20			19,C	105
AND-NOR,4-4 INPUT EX	SW	SWG111	A	TTL	-55	125		5.0	20	7				13	20			19,C	105
AND-NOR,4-4 INPUT EX	SW	SWG110	A	TTL	-55	125		5.0	20	15				13	20			19,C	105
AND-NOR,4-4 INPUT EX	SW	SWG113	A	TTL	0	75		5.0	20	6				13	20			19,C	105
AND-NOR,4-4 INPUT EX	SYL	SG211	B	TTL	-55	125		5.0	30	6	1.10	1.70	.65	7		.45	3.00	G,H	272
AND-NOR,4-4 INPUT EX	SYL	SG213	B	TTL	0	75		5.0	30	6	1.10	1.70	.65	7		.45	3.00	G,H	272
AND-NOR,4-4 INPUT EX	SYL	SG212	B	TTL	0	75		5.0	30	9	1.10	1.70	.65	7		.45	3.00	G,H	272
AND-NOR,4-4 INPUT EX	SYL	SG210	B	TTL	-55	125		5.0	30	11	1.10	1.70	.65	7		.45	3.00	G,H	272
AND-NOR,4-4 INPUT EX	TRAN	TNG3251	B	TTL	-55	125		5.0		15	1.20	1.70	.70	* 18		.45	2.40	47,H	105
AND-NOR,4-4 INPUT EX	TRAN	TNG3253	B	TTL	-55	125		5.0		7	1.20	1.70	.70	* 18		.45	2.40	47,H	105
AND-NOR,4-4 INPUT EX	TRAN	TNG3252	B	TTL	0	75		5.0		15	1.20	1.70	.70	* 18		.45	2.40	47,H	105
AND-NOR,4-4 INPUT EX	TRAN	TNG3254	B	TTL	0	75		5.0		7	1.20	1.70	.70	* 18		.45	2.40	47,H	105
AND-OR-NAND,1-2-2-2 INP	WMED	WS810	A	DTL	0	125		4.0	*20	10	.70	1.75	.25	* 50		.45	2.50	S	107
AND-OR-NAND,2-2-2 INPUT	WMED	WS814	A	DTL	0	125		4.0	20	10	.70	1.75	.25	* 50		.45	2.50	S	106
AND-OR-NAND,2-2-3 INPUT	WMED	WS812	A	DTL	0	125		4.0	*15	10	.70	1.75	.25	* 50		.45	2.50	S	107
AND-OR,DUAL 2-2 INP EX	TRAN	TNG7254	B	TTL	0	75		5.0	40	7	1.20	1.80	.80	* 18		.40	3.10	47,H	286
AND/NAND DUAL 2-2INP EX	TRAN	TNG7251	B	TTL	-55	125		5.0		15			1.00	18		.40	3.10		
AND/NAND DUAL 2-2INP EX	TRAN	TNG7253	B	TTL	-55	125		5.0		7			1.00	18		.40	3.10		
AND/NAND/NOR,5 INPUT EX	TI	SN531	F	DTL	-55	125		3.5	18	* 10	.80	1.70		25		.30	2.20	74	105
AND/NOR DUAL 4 INPUT EX	SYL	SG270	A	TTL	-55	125		5.0	14		1.20	1.70		1				H,G	319
AND/NOR DUAL 4 INPUT EX	SYL	SG273	A	TTL	0	75		5.0	14		1.10	1.80		1				H,G	319
AND/NOR DUAL 4 INPUT EX	SYL	SG271	A	TTL	-55	125		5.0	14		1.20	1.70		1				H,G	319
AND/NOR DUAL 4 INPUT EX	SYL	SG272	A	TTL	0	75		5.0	14		1.10	1.80		1				H,G	319
AND/NOR QUAD 2 INPUT EX	SYL	SG232	A	TTL	0	75		5.0	28		1.10	1.80						H,G	258
AND/NOR QUAD 2 INPUT EX	SYL	SG230	A	TTL	-55	125		5.0	28		1.10	1.70						H,G	258
AND/NOR QUAD 2 INPUT EX	SYL	SG233	A	TTL	0	75		5.0	28		1.10	1.80						H,G	258
AND/NOR QUAD 2 INPUT EX	SYL	SG231	A	TTL	-55	125		5.0	28		1.10	1.70						H,G	258
AND/NOR 2-OUTPUT 2-2INP	SYL	SG313	A	TTL	0	75		5.0	29	5	1.10	1.80	1.00	6		.40	3.00	H,G	272

CIRCUIT DESCRIPTION	MFR	MFRS PART NUMBER	T E C H	TYPE OF LOG- IC	OPER TEMP CENTGRDE MIN	OPER TEMP CENTGRDE MAX	SUPPLY VOLTAGE VDC NO. 2	SUPPLY VOLTAGE VDC NO. 1	PWR DIS MW	FAN- OUT	INPUT THRESHOLD VOLTS ZERO	INPUT THRESHOLD VOLTS ONE	NOISE IMMU- NITY VOLTS	DELAY NANO- SECS	OPER- ATING SPEED MHZ	OUTPUT LEVEL ZERO	OUTPUT LEVEL ONE	PACK- AGE TYPE	SCHE- MATIC NO.
AND/NOR 2-OUTPUT 2-2INP	SYL	SG312	A	TTL	0	75		5.0	29	9	1.10	1.80	1.00	6		.40	3.00	H,G	272
AND/NOR 2-OUTPUT 2-2INP	SYL	SG310	A	TTL	-55	125		5.0	29	11	1.10	1.70	1.00	6		.40	3.10	H,G	272
AND/NOR 2-OUTPUT 2-2INP	SYL	SG311	A	TTL	-55	125		5.0	29	6	1.10	1.70	1.00	6		.40	3.10	H,G	272
AND/NOR 3-3 INPUT EX	SYL	SG302	A	TTL	0	75		5.0	36	9	1.10	1.80	1.00	6		.40	3.00	H,G	320
AND/NOR 3-3 INPUT EX	SYL	SG300	A	TTL	-55	125		5.0	36	11	1.10	1.70	1.00	6		.40	3.10	H,G	320
AND/NOR 3-3 INPUT EX	SYL	SG301	A	TTL	-55	125		5.0	36	6	1.10	1.70	1.00	6		.40	3.10	H,G	320
AND/NOR 3-3 INPUT EX	SYL	SG303	A	TTL	0	75		5.0	36	5	1.10	1.80	1.00	6		.40	3.00	H,G	320
AND/NOR,2-2,2-3 INPUT	TRAN	TNG4411	B	TTL	-55	125		5.0		15						.45	3.10		
AND/NOR,2-2,2-3 INPUT	TRAN	TNG4441	B	TTL	-55	125		5.0		15						.45	3.10		
AND/NOR,2-2,2-3 INPUT	TRAN	TNG4444	B	TTL	0	75		5.0		7						.45	3.10		
AND/NOR,2-2,2-3 INPUT	TRAN	TNG4413	B	TTL	-55	125		5.0		7						.45	3.10		
AND/NOR,2-2,2-3 INPUT	TRAN	TNG4442	B	TTL	0	75		5.0		15						.45	3.10		
AND/NOR,2-2,2-3 INPUT	TRAN	TNG4443	B	TTL	-55	125		5.0		7						.45	3.10		
AND/NOR,2-2,2-3 INPUT	TRAN	TNG4412	B	TTL	0	75		5.0		15						.45	3.10		
AND/NOR,2-2,2-3 INPUT	TRAN	TNG4414	B	TTL	0	75		5.0		7						.45	3.10		
AND/OR DUAL 4 INPUT	SYL	SG283	A	TTL	0	75		5.0	38	6	1.20	1.70	1.00	10		.40	3.10	H,G	
AND/OR DUAL 4 INPUT	SYL	SG280	A	TTL	-55	125		5.0	38	15	1.20	1.60	1.00	10		.40	3.10	H,G	
AND/OR DUAL 4 INPUT	SYL	SG281	A	TTL	-55	125		5.0	38	7	1.20	1.60	1.00	10		.40	3.10	H,G	
AND/OR DUAL 4 INPUT	SYL	SG282	A	TTL	0	75		5.0	38	12	1.20	1.70	1.00	10		.40	3.10	H,G	
AND/OR 2-2INP&2-3INP EX	SYL	SG292	A	TTL	0	75		5.0	38		1.20	1.70	1.00	10		.40	3.10	H,G	
AND/OR 2-2INP&2-3INP EX	SYL	SG290	A	TTL	-55	125		5.0	38		1.20	1.60	1.00	10		.40	3.10	H,G	
AND/OR 2-2INP&2-3INP EX	SYL	SG291	A	TTL	-55	125		5.0	38		1.20	1.60	1.00	10		.40	3.10	H,G	
AND/OR 2-2INP&2-3INP EX	SYL	SG293	A	TTL	0	75		5.0	38		1.20	1.70	1.00	10		.40	3.10	H,G	
AND,DUAL 2-3 INPUT	TI	SN534	F	DTL	-55	125	3.5	-3.0	#40	4				5				74	112
AND,DUAL 3 INPUT	PHIL	254D3	A	DTL	-55	125		8.0	K30	5				L 4				B,U	160
AND,DUAL 3 INPUT	SIGN	LU306	A		10	55		4.5	5	* 10				15				B	114
AND,DUAL 3 INPUT	SIGN	SU306	A	TTL	-20	85		4.5	I0					25				S,B	114
AND,DUAL 3 INPUT	FSC	CS705	A		-55	125		* 8.0	K30					L 3				B,S	113
AND,DUAL 3 INPUT	SIGN	CS705	A	DTL	-55	125		* 8.0	K30					*L 4				B,S	113
AND,DUAL 3 INPUT	PHIL	PL9986	A	TTL	-55	125		3.0	E23	15	.50	.85		25		.23	1.00	41	273
AND,DUAL 3 INPUT EX	TRAN	TNG6261	B	TTL	-55	125		5.0		15	1.20	1.80	1.00	18		.40	3.10	H,47	
AND,DUAL 3 INPUT EX	TRAN	TNG6263	B	TTL	-55	125		5.0		7	1.20	1.80	1.00	18		.40	3.10	H,47	
AND,DUAL 3 INPUT EX	MOTA	MC215	A	DTL	-55	125		* 8.0	K30					L 4				13,S	113D
AND,DUAL 3 INPUT EX	MOTA	MO265	A	DTL	0	75		* 8.0	K30					L 4				13	113D
AND,DUAL 3 INPUT EX	TRAN	TNG6262	B	TTL	0	75		5.0	40	15	1.20	1.80	.80	* 18		.40	3.10	47,H	284
AND,DUAL 3 INPUT EX	TRAN	TNG6264	B	TTL	0	75		5.0	40	7	1.20	1.80	.80	* 18		.40	3.10	47,H	284
AND,DUAL 4 INPUT	TRAN	TNG6221	B	TTL	-55	125		5.0		15	1.20	1.80	1.00	18		.40	3.10	H,47	
AND,DUAL 4 INPUT	TRAN	TNG6223	B	TTL	-55	125		5.0		7	1.20	1.80	1.00	18		.40	3.10	H,47	
AND,DUAL 4 INPUT	TI	SN54H21	B	TTL	-55	125		5.0		10	2.00	.80	.40	11		.40	2.40	F	302
AND,DUAL 4 INPUT	TI	SN74H21	A	TTL	0	70		5.0		10	2.00	.80	.40	11		.40	2.40	F	302
AND,DUAL 4 INPUT	FSC	CTL954	A	RTL	15	55	4.5	-2.0	55	15				4				H	116
AND,DUAL 4 INPUT	TRAN	TNG6224	B	TTL	0	75		5.0	40	7	1.20	1.80	.80	* 18		.40	3.10	47,H	284
AND,DUAL 4 INPUT	TRAN	TNG6222	B	TTL	0	75		5.0	40	15	1.20	1.80	.80	* 18		.40	3.10	47,H	284
AND,DUAL 4 INPUT EX	TRAN	TNG6251	B	TTL	-55	125		5.0		15	1.20	1.80	1.00	18		.40	3.10	H,47	
AND,DUAL 4 INPUT EX	TRAN	TNG6253	B	TTL	-55	125		5.0		7	1.20	1.80	1.00	18		.40	3.10	H,47	
AND,DUAL 4 INPUT EX	TRAN	TNG6254	B	TTL	0	75		5.0	40	7	1.20	1.60	.80	* 18		.40	3.10	47,H	285
AND,DUAL 4 INPUT EX	TRAN	TNG6252	B	TTL	0	75		5.0	40	15	1.20	1.80	.80	* 18		.40	3.10	47,H	285
AND,DUAL 5-7 INPUT	VARO	8210	E	DTL	-55	125		6.0										72	

CIRCUIT DESCRIPTION	MFR	MFRS PART NUMBER	T E C H	TYPE OF LOG- IC	OPER TEMP CENTGRDE MIN	MAX	SUPPLY VOLTAGE VDC NO. 2	NO. 1	PWR DIS MW	FAN- OUT	INPUT THRESHOLD VOLTS ZERO	ONE	NOISE IMMU- NITY VOLTS	DELAY NANO- SECS	OPER- ATING SPEED MHZ	OUTPUT LEVEL ZERO	ONE	PACK- AGE TYPE	SCHE- MATIC NO.
AND,QUAD 2-2-3-3 INPUT	VARO	8208	E	DTL	-55	125		6.0										72	110
AND,TRIPLE 2-2-3 INPUT	FSC	CTL953	A	RTL	15	55	4.5	-2.0	55	15				4				H	116
AND,TRIPLE 2-2-6 INPUT	VARO	8207	E	DTL	-55	125		6.0										72	
AND,TRIPLE 3 INPUT	VARO	8209	E	DTL	-55	125		6.0										72	110
AND,1-1-1-2 INPUT	MOTA	MC1113	F	DTL	-55	125		* 10.0	K20					L 15				13	111
AND,2 INPUT EXPANDABLE	PHIL	PL961O	A	RTL	-55	125	6.5	-6.5			1.80	1.50		25				A	276
AND,2-2-2 INPUT	MOTA	MC1112	F	DTL	-55	125		* 10.0	K20					L 15				13	111
AND,2-3 INP PLS SHP/DLY	SYL	SG80	A	TTL	-55	125		5.0	15	15	1.80	1.40	.90	12	20	.25	3.30	H,G	
AND,2-3 INP PLS SHP/DLY	SYL	SG81	A	TTL	-55	125		5.0	15	7	1.80	1.40	.90	12	20	.25	3.30	H,G	
AND,2-3 INP PLS SHP/DLY	SYL	SG82	A	TTL	0	75		5.0	17	12	1.80	1.40	.90	12	20	.25	3.30	H,G	
AND,2-3 INP PLS SHP/DLY	SYL	SG83	A	TTL	0	75		5.0	17	6	1.80	1.40	.90	12	20	.25	3.30	H,G	
AND,3 INPUT	PHIL	PL9606	A	RTL	-55	125	10.0	3.0			.49	.82					.88	69	275
AND,3-4 INPUT	MOTA	MC1111	F	DTL	-55	125		* 10.0	K20					L 20				13	111
AND,4 INPUT EX	TRAN	TNG6521	B	TTL	-55	125		5.0		40			1.00	16		.40	3.10		
AND,4 INPUT EX	TRAN	TNG6523	B	TTL	-55	125		5.0		24			1.00	18		.40	3.10		
AND,4 INPUT EXPANDABLE	TRAN	TNG6522	B	TTL	0	75		5.0	80	40	1.20	1.80	.80	* 18		.40	3.10	47,H	284
AND,4 INPUT EXPANDABLE	TRAN	TNG6524	B	TTL	0	75		5.0	80	24	1.20	1.80	.80	* 18		.40	3.10	47,H	284
AND,5 INPUT EXPANDABLE	TI	SN532	F	DTL	-55	125	3.5	-3.0	*20	4				5				74	112
AND,6 INPUT	MOTA	MC203	A	DTL	-55	125		* 8.0	K30					L 4				13,S	113
AND,6 INPUT	MOTA	MC253	A	DTL	0	75		* 8.0	K30					L 4				13	113
AND,6 INPUT	SIGN	LU305	A		10	55		4.5	5	* 10				15				B	114
AND,6 INPUT	SIGN	SU305	A	TTL	-20	85		4.5	5	* 10				25				S,B	114
AND,6 INPUT	FSC	SE105	A		-55	125		* 8.0	K30					L 3				B,S	113
AND,6 INPUT EXPANDABLE	PHIL	254G6	A	DTL	-55	125		8.0	K30					L 4				B,U	113
AND,6 INPUT EXPANDABLE	SIGN	SE105	A	DTL	-55	125		* 8.0	K30					*L 4				B,S	113
AND,8 INPUT	FSC	CTL955	A	RTL	15	55	4.5	-2.0	55	15				4				H	116
AND,8 INPUT	MOTA	MC1114	F	DTL	-55	125		* 10.0	K20					L 15				13	113D
BUFFER,DUAL 4 INPUT	AMEL	511B	A	TTL	-55	125		5.0	20	* 10			1.00	30		.25	3.80	C	
BUFFER,DUAL 4 INPUT	AMEL	560B	A	TTL	-55	125		5.0	100	* 28			1.00	25		.40	3.80	C	
BUFFER,DUAL 4 INPUT	AMEL	510B	A	TTL	-55	125		5.0	20	* 10			1.00	30		.25	3.80	C	
BUFFER,DUAL 4 INPUT	AMEL	540B	A	TTL	-55	125		5.0	30	* 25			1.00	25		.25	3.80	C	
BUFFER,DUAL 4 INPUT	AMEL	541B	A	TTL	-55	125		5.0	40	* 25			1.00	25		.25	3.80	C	
BUFFER,2NAND-2NOR INP	AMEL	542B	A	TTL	-55	125		5.5	30	* 16			1.00	25		.25	3.80	C	
BUFFER,2NAND-2NOR INP	AMEL	582B	A	TTL	-55	125		5.5	40	* 40			1.00	25		.40	3.80	C	
BUFFER,2NAND-2NOR INP	AMEL	585B	A	TTL	-55	125		5.5	40	* 15			1.00	25		.40	3.80	C	
CONVERTER,BCD TO B	PHIL	PL4G03	K	MOS	-55	125	-12.0	-24.0			3.00	9.00	1.00	1000	.10	2.00	10.00	C,77	291
CONVERTER,BCD TO D	PHIL	PL4G02	K	MOS	-20	70	-12.0	-24.0			3.00	9.00	1.00	800	.10	2.00	10.00	88	290
CONVERTER,D TO A	PHIL	PL4S02	K	MOS	-55	125	-12.0	-24.0	*75		3.00	9.00		500	.10			C,77	117
CONVERTER,D TO A	GELM	7736079	N		-55	125	28.0	- 1.0*	X20						1.50			79	115
COUNTER ADAPTER	AMEL	142B	F	RTL	-55	125		3.0	50	* 6			.26	32		.25	.81	B,C	
COUNTER ADAPTER	AMEL	142C	F	RTL	0	70		3.0	50	* 6			.25	47		.25	.81	B	
COUNTER ADAPTER	AMEL	142A	F	RTL	-55	125		3.0	50	* 10			.30	32		.25	.81	B,C	
COUNTER ADAPTER	PHIL	PL901	A	RTL	-55	125		3.0	55	5	.56	.82	.26	* 26		.30	.84	A,69	118
COUNTER ADAPTER	FSC	L901C	A	RTL	0	100		3.0	55	5	.55	.84		* 26		.40		A,D	118
COUNTER ADAPTER	FSC	L901	A	RTL	-55	125		3.0	55	5	.56	.82		* 26		.30		A,D	118
COUNTER ADAPTER	NSC	NB1001	A	RTL	-55	125		3.0	55	13	.69	.77		16		.15		2	118
COUNTER ADAPTER	NSC	NB2001	A	RTL	0	100		3.0	55	13	.69	.77		16		.15		2	118
COUNTER ADAPTER	MOTA	MC801	F	RTL	0	100		3.0	55	5	.55	.84		* 42		.40	.84	A	118

CIRCUIT DESCRIPTION	MFR	MFRS PART NUMBER	TEC H	TYPE OF LOG-IC	OPER TEMP CENTGRDE MIN	OPER TEMP CENTGRDE MAX	SUPPLY VOLTAGE VDC NO. 2	SUPPLY VOLTAGE VDC NO. 1	PWR DIS MW	FAN-OUT	INPUT THRESHOLD VOLTS ZERO	INPUT THRESHOLD VOLTS ONE	NOISE IMMU-NITY VOLTS	DELAY NANO-SECS	OPER-ATING SPEED MHZ	OUTPUT LEVEL ZERO	OUTPUT LEVEL ONE	PACK-AGE TYPE	SCHE-MATIC NO.
COUNTER ADAPTER	MOTA	MC901	F	RTL	-55	125		3.0	55	5	.56	.82	.02	* 42		.30	.84	A	118
COUNTER,DECADE	FSC	CL958	A		0	75		4.5	190		.45	1.40		* 200	* 2	.45	1.40	A	
D-TYPE FLIP FLOP	TI	SN17913L		TTL	-55	125		3.0						40				1	
D-TYPE,2-EDGE TRIGGERED	TI	SN5474	A	TTL	-55	125		5.0		10	.80	2.00				.40	2.40	F	311
D-TYPE,2-EDGE TRIGGERED	TI	SN7474	A	TTL	0	70		5.0		10	.80	2.00	.40		25	.40	2.40	F	311
DRIVER	VARO	8213	E	DTL	-55	125	C 3.0	-3.0		10	.50	3.00		15		.50	3.50	72	126
DRIVER	INTX	GBXXXXX	L		-55	125		* 12.0		* 20					* 5			78	124
DRIVER	SPRG	US-0107	F	RCTL	-55	125		3.0	5	* 20	.40	1.15	.05	200		.35	2.50	57	
DRIVER	GI	NCPC12	H	DTL	-55	125	12.0	4.2	200	20				55	12	.30	5.00	90	123
DRIVER	TI	SN517	F	RCTL	-55	125		3.0	5	* 20	.40	1.15	.05	200		.35	2.50	74	125
DRIVER	FSC	SH2100		RTL	-55	125		3.0	65	*200	.56	.82		* 75		.30		A	
DRIVER,BCD TO DECIMAL	TI	SN7441N	A	TTL	0	70		5.0			2.00	.80						67	
DRIVER,DUAL 2 INPUT	FSC	CTL956	A	RTL	15	55	4.5	-2.0	150	25	.92	1.20	1.20	15		- .60	2.40	H	122
DRIVER,DUAL 3 INPUT	TI	SN14310	A	DTL	0	75		6.0	50	17	1.00	2.00	.55	75		.45	3.50	F	179
DRIVER,DUAL 3 INPUT	TI	SN14210	B	DTL	-55	125		6.0	38	22				53		.45	3.50	F	179
DRIVER,HEX HIGH VOLTAGE	RAD	RD223	S	DTL	-55	125		5.0	10				.80	12		1.00	29.00	F	292
DRIVER,HEX INDICATOR	RAD	RD536	S	DTL	0	75		5.0	14					2		1.00	3.00	F	327
DRIVER,QUAD	GI	MEM4000	K															18,82	267
DRIVER,2 INPUT	WMED	WS151	A	DTL	0	125		10.0	150					175		1.00		S	127
EXCLUSIVE OR	TI	SN5454	A	TTL	-55	125		5.0	10	10	.80	2.00		13		.40	2.40	F	134
EXCLUSIVE OR	TI	SN7454	A	TTL	0	70		5.0	10	10	.80	2.00	.40	13		.40	2.40	F	134
EXCLUSIVE OR	PHIL	PL912	A	RTL	-55	125		3.0	8	4,3	.45	.75	.05	* 120		.30	.80	A,51	135
EXCLUSIVE OR	PHIL	PL904	A	RTL	-55	125		3.0	45	5,4	.56	.82		* 22		.30		A,69	129
EXCLUSIVE OR	TI	SN734	A	RTL	-55	125		3.0	8	4				70					
EXCLUSIVE OR	PHIL	PL981	A	RTL	-55	125		4.0	8	5,4	.45	.82		27		.40		41,51	135
EXCLUSIVE OR	TI	SN5191	F	RCTL	-55	125		3.0	6	5								T	133
EXCLUSIVE OR	TI	SN515	F	RCTL	-55	125		3.0	3	5,4	.4W	1.1W		250		.4W	1.1W	T	130
EXCLUSIVE OR	MOTA	MC353	A	ECL	0	75	- 1.15	-5.2	60	25	1.35	1.00	.20	6		1.55	.75	13,C	128
EXCLUSIVE OR	FSC	L904C	A	RTL	0	100		3.0	45	5,4	.55	.80	.25	* 22		.30	1.45	A,D	129
EXCLUSIVE OR	NSC	NB2004	A	RTL	0	100		3.0	#45	13	.69	.77		16		.15		2	129
EXCLUSIVE OR	NSC	NB1004	A	RTL	-55	125		3.0	#45	13	.69	.77		16		.15		2	129
EXCLUSIVE OR	FSC	MWL912	A	RTL	-55	125		3.0	8	4,3	.45	.75	.15	75		.30	.90	A	135
EXCLUSIVE OR	MOTA	MC303	A	ECL	-55	125	- 1.15	-5.2	35	25	1.35	1.00	.20	6		1.55	.75	10,S	128
EXCLUSIVE OR	FSC	L904	A	RTL	-55	125		3.0	45	5,4	.55	.80	.25	* 22		.30	1.45	A,D	129
EXCLUSIVE OR	SPRG	US-0105	F	RCTL	-55	125		3.0	3	5	.4W	1.1W				.4W	1.1W	57	
EXCLUSIVE OR	MOTA	MC904	F	RTL	-55	125		3.0	45	5,4	.56	.82	.02	* 36		.30	.84	A	129
EXCLUSIVE OR	MOTA	MC804	F	RTL	0	100		3.0	45	5,4	.55	.84		* 36		.40	.84	A	129
EXCLUSIVE OR	SPRG	US-0712	F	RTL	-55	125		3.0	8					* 120				57,62	
EXCLUSIVE OR	SW	SW303	A	ECL	-55	125	- 1.15	-5.2	35	* 25	1.35	1.00	.20	6		1.55	.75	19,S	128
EXCLUSIVE OR	SIGN	SE840	A	TTL	-55	125		5.0		10				13		.20	2.40	X	295
EXCLUSIVE OR DUAL	TRAN	TNG4244	B	TTL	0	75		5.0	22	7			1.00	10	40	.45	3.10	H,47	272
EXCLUSIVE OR DUAL	TRAN	TNG4241	B	TTL	-55	125		5.0	22	15			1.00	10	40	.45	3.20	H,47	272
EXCLUSIVE OR DUAL	TRAN	TNG4242	B	TTL	0	75		5.0	22	15			1.00	10	40	.45	3.10	H,47	272
EXCLUSIVE OR DUAL	TRAN	TNG4243	B	TTL	-55	125		5.0	22	7			1.00	10	40	.45	3.20	H,47	272
EXCLUSIVE OR DUAL	AMEL	341BG	A	DTL	-55	125		12.0	70	6			4.80	60		1.20	12.00	30	301
EXCLUSIVE OR DUAL	AMEL	341CJ	A	DTL	0	70		12.0	70	6			4.80	60		1.20	12.00	68	301
EXCLUSIVE OR DUAL	AMEL	341CG	A	DTL	0	100		12.0	70	6			4.80	60		1.20	12.00	30	301
EXCLUSIVE OR DUAL 2-2	TI	SN54966	B	TTL	-55	125		5.0	10	10	.80	2.00	.40	13		.40	2.40	F	137

CIRCUIT DESCRIPTION	MFR	MFRS PART NUMBER	T E C H	TYPE OF LOG- IC	OPER TEMP CENT GRDE MIN	MAX	SUPPLY VOLTAGE VDC NO. 2	NO. 1	PWR DIS MW	FAN- OUT	INPUT THRESHOLD VOLTS ZERO	ONE	NOISE IMMU- NITY VOLTS	DELAY NANO- SECS	OPER- ATING SPEED MHZ	OUTPUT LEVEL ZERO	ONE	PACK- AGE TYPE	SCHE- MATIC NO.
EXCLUSIVE OR DUAL 2-2	TI	SN74966	F	TTL	0	70		5.0	10	10	.80	2.00	.40	13		.40	2.40	F	137
EXCLUSIVE OR DUAL 4 INP	AMEL	508B	A	TTL	-55	125		5.0	10	• 6			1.00	35		.40	3.80	C	
EXCLUSIVE OR DUAL 4 INP	AMEL	508B	A	TTL	-55	125		4.0	2	• 8			1.00	180		.25	3.80	C	
EXCLUSIVE OR DUAL 4 INP	AMEL	538B	A	TTL	-55	125		5.0	5	• 6			1.00	100		.25	3.80	C	
EXCLUSIVE OR EXPANDABLE	TI	SN5453	A	TTL	-55	125		5.0	10	10	.80	2.00		13		.40	2.40	F	134
EXCLUSIVE OR WC	PHIL	134H	A	RTL	-55	125		3.0	*10	5	.55	.75	.05	100		.50	.85	B,U	135
EXCLUSIVE OR WC	SYL	SG93	B	TTL	0	75		5.0	35	6	1.20	1.80	.73	• 47		.47	3.10	G,H	131
EXCLUSIVE OR WC	SYL	SG92	B	TTL	0	75		5.0	35	12	1.20	1.80	.73	• 46		.47	3.10	G,H	131
EXCLUSIVE OR WC	MOTA	MC912	A	RTL	-55	125		3.0	8		.45	.75	.05	90		.30	.80	A	135
EXCLUSIVE OR WC	NSC	NC1012	A	RTL	-55	125		3.0	8	4,3	.69	.77		16		.15		2	135
EXCLUSIVE OR WC	SYL	SG91	B	TTL	-55	125		5.0	35	7	1.20	1.70	.75	• 49		.45	3.20	G,H	131
EXCLUSIVE OR WC	SYL	SG90	B	TTL	-55	125		5.0	35	15	1.20	1.70	.75	• 46		.45	3.20	G,H	131
EXCLUSIVE OR WC	NSC	NC2012	A	RTL	0	100		3.0	8	4,3	.69	.77		16		.15		2	135
EXCLUSIVE OR WC	SW	SWG92	A	TTL	0	75		5.0	14	12				14	20			19,C	131
EXCLUSIVE OR WC	SW	SWG93	A	TTL	0	75		5.0	14	5				14	20			19,C	131
EXCLUSIVE OR WC	SW	SWG91	A	TTL	-55	125		5.0	14	7				14	20			19,C	131
EXCLUSIVE OR WC	SW	SWG90	A	TTL	-55	125		5.0	14	15				14	20			19,C	131
EXCLUSIVE OR WC	TRAN	TNG4613	B	TTL	-55	125		5.0		7	1.20	1.70	.70	• 18		.45	2.40	47,H	131
EXCLUSIVE OR WC	TRAN	TNG4612	B	TTL	0	75		5.0		15	1.20	1.70	.70	• 18		.45	2.40	47,H	131
EXCLUSIVE OR WC	TRAN	TNG4614	B	TTL	0	75		5.0		7	1.20	1.70	.70	• 18		.45	2.40	47,H	131
EXCLUSIVE OR WC	TRAN	TNG4611	B	TTL	-55	125		5.0		15	1.20	1.70	.70	• 18		.45	2.40	47,H	131
EXCLUSIVE OR,DUAL	TI	SN5491	A	TTL	-55	125		5.0	10	10	.80	2.00		13		.40	2.40	F	137
EXCLUSIVE OR,DUAL	TI	SN7451	A	TTL	0	70		5.0	10	10	.80	2.00	.40	13		.40	2.40	F	137
EXCLUSIVE OR,DUAL	TI	SN5370	F	DTL	-55	125		3.5	*24	10								T	136
EXCLUSIVE OR,DUAL	TI	SN7370	F	DTL	0	70		3.0		10	.40	1.70		65		.30	1.70	G,T,76	136
EXCLUSIVE OR,DUAL EX	TI	SN5450	A	TTL	-55	125		5.0	10	10	.80	2.00	.40	13		.40	2.40	F	137
EXCLUSIVE OR,DUAL EX	TI	SN5450	A	TTL	-55	125		5.0	10	10								F	137
EXCLUSIVE OR,DUAL EX	TI	SN7450	F	TTL	0	70		5.0		* 10	.80	2.00	.40	13		.40	2.40	F,76	137
EXCLUSIVE OR,EXPANDABLE	TI	SN7453	A	TTL	0	70		5.0	10	10	.80	2.00	.40	13		.40	2.40	F	134
EXPANDER DUAL 4 INPUT	TI	SN15933		DTL	-55	125		5.0	5	8				25				F	113 F
EXPANDER DUAL 4 INPUT	TI	SN15833		DTL	0	75		5.0	5	8				25				F	113 F
EXPANDER OR,DUAL 4 INP	TRAN	TNG4041	B	TTL	-55	125		5.0	22	15			1.00	10	40	.45	3.20	H,47	139
EXPANDER OR,DUAL 4 INP	TRAN	TNG4042	B	TTL	0	75		5.0	22	15			1.00	10	40	.45	3.10	H,47	139
EXPANDER OR,QUAD 2 INP	TRAN	TNG4541	B	TTL	-55	125		5.0	22	15			1.00	10	40	.45	3.20	H,47	258
EXPANDER OR,QUAD 2 INP	TRAN	TNG4542	B	TTL	0	75		5.0	22	15			1.00	10	40	.45	3.10	H,47	258
EXPANDER,AND-NOR2-2-3-3	SYL	SG150	A	TTL	-55	125		5.0	*30		1.20	1.70	.55		20	.65	4.80	G,H	258
EXPANDER,AND-NOR2-2-3-3	SYL	SG152	A	TTL	0	75		5.0	*35		1.80	1.20	1.15		20	.65	4.80	G,H	258
EXPANDER,AND-NOR2-2-3-3	SYL	SG232	B	TTL	0	75		5.0	28		1.10	1.70		2		.45		G,H	258
EXPANDER,AND-NOR2-2-3-3	SYL	SG230	B	TTL	-55	125		5.0	28		1.10	1.70		2		.45		G,H	258
EXPANDER,AND-NOR2-2-4-4	SW	SWG150	A	TTL	-55	125		5.0	20	15					20			19,C	258
EXPANDER,AND-NOR2-2-4-4	SW	SWG151	A	TTL	-55	125		5.0	20	7					20			19,C	258
EXPANDER,AND-NOR2-2-4-4	SW	SWG152	A	TTL	0	75		5.0	25	12					20			19,C	258
EXPANDER,AND-NOR2-2-4-4	SW	SWG153	A	TTL	0	75		5.0	20	5					20			19,C	258
EXPANDER,AND-NOR3-8 INP	TRAN	TNG7712	B	TTL	0	75		5.0	40		1.20	1.80		• 18		.40		47,H	287
EXPANDER,AND-OR 3-4-4	TRAN	TNG7812	B	TTL	0	75		5.0	40		1.20	1.80		• 18		.40		47,H	287
EXPANDER,AND/NOR 3-8INP	TRAN	TNG7711	B	TTL	-55	125		5.0					1.00	18					
EXPANDER,AND/NOR2,2-3IN	TRAN	TNG7911	B	TTL	-55	125		5.0					1.00	18					
EXPANDER,AND/OR 3-4INP	TRAN	TNG7811	B	TTL	-55	125		5.0					1.00	18					

CIRCUIT DESCRIPTION	MFR	MFRS PART NUMBER	TEC H	TYPE OF LOGIC	OPER TEMP GRDE CENT MIN	OPER TEMP GRDE CENT MAX	SUPPLY VOLTAGE VDC NO. 2	SUPPLY VOLTAGE VDC NO. 1	PWR DIS MW	FAN-OUT	INPUT THRESHOLD VOLTS ZERO	INPUT THRESHOLD VOLTS ONE	NOISE IMMUNITY VOLTS	DELAY NANOSECS	OPERATING SPEED MHZ	OUTPUT LEVEL ZERO	OUTPUT LEVEL ONE	PACKAGE TYPE	SCHEMATIC NO.
EXPANDER,DUAL	TI	SN17921L		TTL	-55	125		3.0	5					40				1	
EXPANDER,DUAL 2 INP NOR	PHIL	I34E	A	RTL	-55	125		3.0				.75		40		.50	.83	B,U	140
EXPANDER,DUAL 2 INP NOR	MOTA	MC921	A	RTL	-55	125		3.0			.45	.75	.05			.30	.80	A	140
EXPANDER,DUAL 2 INP NOR	PHIL	PL979	A	RTL	-55	125		4.0			.45	.82				.40		41,51	140A
EXPANDER,DUAL 2 INP NOR	TI	SN732	A	RTL	-55	125		3.0						35				A,T	
EXPANDER,DUAL 2 INP NOR	PHIL	PL921	A	RTL	-55	125		3.0			.45	.75	.05	40		.30	.80	A,51	140A
EXPANDER,DUAL 2 INP NOR	NSC	NC1021	A	RTL	-55	125		3.0			.69	.77				.15		2	140A
EXPANDER,DUAL 2 INP NOR	NSC	NC2021	A	RTL	0	100		3.0			.69	.77				.15		2	140A
EXPANDER,DUAL 2 INP NOR	FSC	MWL921	A	RTL	-55	125		3.0			.45	.75	.05	25		.30	.80	A	140A
EXPANDER,DUAL 2 INP NOR	FSC	FL92129	A	RTL	15	55		3.6			.45	.75	.05	25		.30	.80	A	140A
EXPANDER,DUAL 2 INP NOR	SPRG	US-0721	F	RTL	-55	125		3.0	15					* 120				57,62	
EXPANDER,DUAL 2 INP NOR	GI	MEM5005	K															82	268
EXPANDER,DUAL 3 INP NOR	SIGN	LU300	A		10	55								5				B	138
EXPANDER,DUAL 3 INP NOR	SIGN	SU300	A		-20	85		* 5.5	KIO					4				S,B	138
EXPANDER,DUAL 3 INPUT	PHIL	PL9604	A	RTL	-55	125		3.0			.49	.82				.35		69	
EXPANDER,DUAL 3 INPUT	AMEL	131B	F	RTL	-55	125		3.0	I8				.26	12		.25	.81	B,C	140A
EXPANDER,DUAL 3 INPUT	AMEL	131A	F	RTL	-55	125		3.0	I8				.30	12		.25	.81	B,C	140A
EXPANDER,DUAL 3 INPUT	AMEL	131C	F	RTL	0	70		3.0	I8				.25	16		.25	.81	B	140A
EXPANDER,DUAL 4 INP AND	RCA	CD2204	A	DTL	-55	125		* 8.0	KIO									82	330
EXPANDER,DUAL 4 INP AND	SYL	SG183	A	TTL	0	75		5.0			.60	1.70	.35	* 3		.25	3.70	G,H	132
EXPANDER,DUAL 4 INP AND	SYL	SG182	A	TTL	0	75		5.0			.60	1.70	.35	* 3		.25	3.70	G,H	132
EXPANDER,DUAL 4 INP AND	SYL	SG181	A	TTL	-55	125		5.0			.60	1.70	.35	* 3		.25	3.70	G,H	132
EXPANDER,DUAL 4 INP AND	SYL	SG180	A	TTL	-55	125		5.0			.60	1.70	.35	* 3		.25	3.70	G,H	132
EXPANDER,DUAL 4 INP AND	SW	SWG181	A	TTL	-55	125		5.0	1						20			19,C	132
EXPANDER,DUAL 4 INP AND	SW	SWG183	A	TTL	0	75		5.0	1						20			19,C	132
EXPANDER,DUAL 4 INP AND	SW	SWG182	A	TTL	0	75		5.0	1						20			19,C	132
EXPANDER,DUAL 4 INP AND	SW	SWG180	A	TTL	-55	125		5.0	1						20			19,C	132
EXPANDER,DUAL 4 INP AND	TRAN	TNG3512	B	TTL	0	75		5.0			1.20	1.70		* 18				47,H	132
EXPANDER,DUAL 4 INP AND	TRAN	TNG3511	B	TTL	-55	125		5.0			1.20	1.70		* 18				47,H	132
EXPANDER,DUAL 4 INPUT	RAD	RD511	S	DTL	0	75		5.0										F	113F
EXPANDER,DUAL 4 INPUT	TI	SN15833N	A	DTL	0	75		5.0	5	8				30		.45	2.60	H	113 F
EXPANDER,DUAL 5 INPUT	AMEL	331CG	A	DTL	0	100		12.0	15				4.80	60		1.20	12.00	30	111F
EXPANDER,DUAL 5 INPUT	AMEL	331CJ	A	DTL	0	70		12.0	15				4.80	60		1.20	12.00	68	111F
EXPANDER,DUAL 5 INPUT	AMEL	3318G	A	DTL	-55	125		12.0	15				4.80	60		1.20	12.00	30	111F
EXPANDER,DUAL2-3AND-NOR	TRAN	TNG7912	B	TTL	0	75		5.0	40		1.20	1.80		* 18		.40		47,H	287
EXPANDER,DUAL4 INP NAND	TI	SN7460	F	TTL	0	70		5.0		* 10	.80	2.00		10		.40		F,76	139
EXPANDER,DUAL4 INP NAND	SYL	SG170	A	TTL	-55	125		5.0	*14		1.20	1.70	.55		20	.65	4.80	G,H	139
EXPANDER,DUAL4 INP NAND	SYL	SG172	A	TTL	0	75		5.0	*17		1.20	1.80	.55		20	.65	4.80	G,H	139
EXPANDER,DUAL4 INP NAND	TI	SN5460	A	TTL	-55	125		5.0	5		.80	2.00		15		.40		F	139
EXPANDER,DUAL4 INP NAND	SW	SWG173	A	TTL	0	75		5.0	5						20			19,C	139
EXPANDER,DUAL4 INP NAND	SW	SWG170	A	TTL	-55	125		5.0	5						20			19,C	139
EXPANDER,DUAL4 INP NAND	SW	SWG171	A	TTL	-55	125		5.0	5						20			19,C	139
EXPANDER,DUAL4 INP NAND	SW	SWG172	A	TTL	0	75		5.0	5						20			19,C	139
EXPANDER,DUAL4 INP NAND	SYL	SG270	B	TTL	-55	125		5.0	7		1.10	1.70		2		.45		G,H	139
EXPANDER,DUAL4 INP NAND	SYL	SG272	B	TTL	0	75		5.0	7		1.10	1.70		2		.45		G,H	139
EXPANDER,DUAL4 INP NAND	TRAN	TNG4011	B	TTL	-55	125		5.0			1.20	1.70		* 18				47,H	139
EXPANDER,DUAL4 INP NAND	TRAN	TNG4012	B	TTL	0	75		5.0			1.20	1.70		* 18				47,H	139
EXPANDER,DUAL4 INP NAND	SIGN	SE806	A	TTL	-55	125		5.0						19		.20		X	139

CIRCUIT DESCRIPTION	MFR	MFRS PART NUMBER	TEC H	TYPE OF LOG- IC	OPER TEMP CENTGRDE MIN	MAX	SUPPLY VOLTAGE VDC NO. 2	NO. 1	PWR DIS MW	FAN-OUT	INPUT THRESHOLD VOLTS ZERO	ONE	NOISE IMMU-NITY VOLTS	DELAY NANO-SECS	OPER-ATING SPEED MHZ	OUTPUT LEVEL ZERO	ONE	PACK-AGE TYPE	SCHE-MATIC NO.
EXPANDER,TRIPLE DIODE	TI	SN14227	B	DTL	-55	125		6.0										F	113 F
EXPANDER,TRIPLE DIODE	TI	SN14327	A	DTL	0	75		6.0										F	113 F
EXPANDER,1-2 INPUT NOR	GI	MEM5006	K															18	268
EXPANDER,1-4 INPUT NOR	GI	MEM5002	K															82	268
EXPANDER,4 INPUT AND	TRAN	TNG4031	B	TTL	15	55		5.0		7	1.00	2.00	.50	* 25		.50	2.50	47,H	132
EXPANDER,4 INPUT NOR	GI	MEM5003	K															18	268
EXPANDER,5 INPUT AND	TI	SN7320	F	DTL	0	70		3.0									2.10	F,T	138W
EXPANDER,5 INPUT NOR	MOTA	MC355	A	ECL	0	75		* 10.0			1.55	.75		6				13,C	138
EXPANDER,5 INPUT NOR	MOTA	MC305	A	ECL	-55	125		* 10.0			1.55	.75		6				10,S	138
EXPANDER,5 INPUT NOR	SW	SW305	A	ECL	-55	125		* 10.0			1.55	.75		6				19,S	138
EXPANDER,5 INPUT NOR	GI	MEM2001	K															82	
EXPANDER,6 INPUT NOR	GI	MEM5001	K															82	268
EXPANDERTDUAL 4 INPUT	RAD	RD211	S	DTL	-55	125		5.0					.80					F	113F
INTERFACE INPUT	AMEL	3618G	A	DTL	-55	125		12.0	50	8			4.80	30		1.20	12.00	30,C	307
INTERFACE INPUT	AMEL	361CJ	A	DTL	0	70		12.0	50	8			4.80	30		1.20	12.00	68	307
INTERFACE INPUT	AMEL	361CG	A	DTL	0	100		12.0	50	8			4.80	30		1.20	12.00	30,C	307
INTERFACE OUTPUT	AMEL	362CG	A	DTL	0	100		12.0	150	6			4.80	11		1.20	12.00	30,C	310
INTERFACE OUTPUT	AMEL	362CJ	A	DTL	0	70		12.0	150	6			4.80	11		1.20	12.00	68	310
INTERFACE OUTPUT	AMEL	3628G	A	DTL	-55	125		12.0	150	6			4.80	11		1.20	12.00	30,C	310
INVERTER	TI	SN17909L		TTL	-55	125		3.0	3	30				40				1	
INVERTER	AMEL	101C	F	RTL	0	70		3.0	35	* 15			.25	16		.25	.81	B	
INVERTER	AMEL	102C	F	RTL	0	70		3.0	58	* 57			.25	16		.25	.81	B	
INVERTER	AMEL	1028	F	RTL	-55	125		3.0	58	* 57			.26	16		.25	.81	B,C	
INVERTER	AMEL	101A	F	RTL	-55	125		3.0	35	* 33			.30	13		.25	.81	B,C	
INVERTER	AMEL	1018	F	RTL	-55	125		3.0	35	* 15			.26	16		.25	.81	B,C	
INVERTER	AMEL	102A	F	RTL	-55	125		3.0	58	* 83			.30	13		.25	.81	B,C	
INVERTER	TI	SN516	F	RCTL	-55	125		3.0		25	.4W	1.1W		175		.4W	1.1W	F	218
INVERTER	SPRG	US-0106	F	RCTL	-55	125		3.0		25								57,62	
INVERTER	PHIL	PL900	A	RTL	-55	125		3.0		25	.56	.82		16		.30		A,69	142
INVERTER	FSC	L900C	A	RTL	0	100		3.0		25	.55	.84		16		.40		A,D	142
INVERTER	FSC	L900	A	RTL	-55	125		3.0		25	.56	.82		16		.30		A,D	142
INVERTER	NSC	NB1000	A	RTL	-55	125		3.0	16	80	.69	.77		15		.15		2	142
INVERTER	NSC	NB2000	A	RTL	0	100		3.0	16	80	.69	.77		15		.15		2	142
INVERTER	FSC	FL90029	A	RTL	15	55		3.6	30	80				15				A	142
INVERTER	MOTA	MC900	F	RTL	-55	125		3.0		25,5	.56	.82	.02	* 30		.30	.84	A	142
INVERTER	MOTA	MC800	F	RTL	0	100		3.0		25,5	.55	.84		* 30		.40	.84	A	142
INVERTER	SPER	900	A	RTL	-55	125		3.0		* 25	.56	.82		* 30		.30		A,S	142
INVERTER	NORD	NM4002	F	RTL	-55	125		13.0	590					25					141
INVERTER DUAL 5 INPUT	AMEL	3018G	A	DTL	-55	125		12.0	300	6			4.80	60		1.20	12.00	30	
INVERTER DUAL 5 INPUT	AMEL	301CG	A	DTL	0	100		12.0	300	6			4.80	60		1.20	12.00	30	
INVERTER DUAL 5 INPUT	AMEL	301CJ	A	DTL	0	70		12.0	300	6			4.80	60		1.20	12.00	68	
INVERTER QUAD	PHIL	263Q	A	DTL	-55	125		4.0		8	.80	2.00	.40	20		.40	3.50	B,U	192
INVERTER,DUAL	MOTA	ME1115	F	DTL	-55	125	* 10.0	7.0	250					* 32				13	143
INVERTER,DUAL	SPRG	US-0115	F	RCTL	-55	125		3.0	4	* 25								57,62	
INVERTER,DUAL	SPRG	US-0114	F	RCTL	-55	125		3.0	2	* 5								57,62	
INVERTER,HEX	RAD	RD220	S	DTL	-55	125		5.0	10	8			.80	7		.45	4.00	F	292
INVERTER,HEX	RAD	RD320	S	DTL	-55	125		5.0	10	5			.80	7		.40	4.00	F	292
INVERTER,HEX	TI	SN14386		DTL	0	75		6.0		11	1.00	2.00	.55	32		.45	5.80	F	196 A

CIRCUIT DESCRIPTION	MFR	MFRS PART NUMBER	TEC H	TYPE OF LOG- IC	OPER TEMP CENTGRDE MIN	MAX	SUPPLY VOLTAGE VDC NO. 2	NO. 1	PWR DIS MW	FAN- OUT	INPUT THRESHOLD VOLTS ZERO	ONE	NOISE IMMU- NITY VOLTS	DELAY NANO- SECS	OPER- ATING SPEED MHZ	OUTPUT LEVEL ZERO	ONE	PACK- AGE TYPE	SCHE- MATIC NO.
INVERTER,HEX	TI	SN14396		DTL	0	75		6.0		11	1.00	2.00	.55	40		.45	5.80	F	196
INVERTER,HEX	TI	SN14296	B	DTL	-55	125		6.0	20	11			.55	32		.45	5.80	F	196
INVERTER,HEX	TI	SN14286	B	DTL	-55	125		6.0	11	11			.55	23		.45	5.80	F	196 A
INVERTER,HEX INTERFACE	RAD	RD234	S	DTL	-55	125		5.0	12	8			.80	7		.40	4.00	F	327
INVERTER,HEX INTERFACE	RAD	RD235	S	DTL	-55	125		5.0	12				.80	* 35		1.00	29.00	F	327
INVERTER,HEX INTERFACE	RAD	RD334	S	DTL	-55	125		5.0	12				.80	7		.40	4.00	F	327
INVERTER,HEX INTERFACE	RAD	RD534	S	DTL	0	75		5.0	14					* 25		.45	3.00	F	327
INVERTER,QUAD	AMEL	132C	F	RTL	0	70		3.0	36	* 5			.25	20		.25	.81	B	140
INVERTER,QUAD	AMEL	132A	F	RTL	-55	125		3.0	36	* 10			.30	20		.25	.81	B,C	140
INVERTER,QUAD	AMEL	132B	F	RTL	-55	125		3.0	36	* 6			.26	20		.25	.81	B,C	140
INVERTER,QUAD	TI	SN7350	F	RCTL	0	70		3.0		10	.40	1.70		25		.30	1.70	F,T,76	147
INVERTER,QUAD	FSC	L927	A	RTL	-55	125		3.0	48	5				12				B,S	145
INVERTER,QUAD	FSC	FL92729	A	RTL	15	55		3.6	80	16				12				B	145
INVERTER,QUAD	FSC	L927C	A	RTL	0	100		3.0	48	5				12				B,S	145
INVERTER,QUAD	TI	SN535	F	RTL	-55	125		3.5	15	* 10	.30	1.50		20		.30	2.20	74	147
INVERTER,QUAD	SIGN	SE181	A	DTL	-55	125		4.0	*19	* 5	.40	1.95	.70	* 32		1.10	3.90	S,B,X	192
INVERTER,SEXTUPLE	WMED	WM296	A	DTL	-55	125		6.0	11	9	1.00	2.00	.55	32		.45	5.80	F	196
INVERTER,SEXTUPLE	WMED	WM286	A	DTL	-55	125		6.0	5	6	1.00	2.00	.55	23		.45		F	196A
INVERTER,SEXTUPLE	CORN	0094	D		-55	70		10.0	*40	6	.87	2.17	.55	35		.32	2.72	71	146
INVERTER,SEXTUPLE	WMED	WC286	A	DTL	0	75		6.0	8	6	1.00	1.80		30		.45		F	196A
INVERTER,SEXTUPLE	WMED	WC296	A	DTL	0	75		6.0	8	6	1.00	1.80		30		.45		F	196
INVERTER,SEXTUPLE	PHIL	PL9608	A	DTL	-55	125		5.0	*13	8	1.10	2.00	.60	20		.40	2.60	41	192
INVERTER,TRIPLE	TI	SN344	A		0	65	6.0	-3.0	85	12				120		.70		F	196A
INVERTER,TRIPLE	PHIL	PL9611	A	RTL	-55	125		3.0						27				A	277
J-K CLOCKED OR DIRECT	NSC	NB1016	A	RTL	-55	125		3.0					.25					2	155
J-K CLOCKED OR DIRECT	NSC	NB2016	A	RTL	0	100		3.0					.25					2	155
J-K CLOCKED OR DIRECT	AMEL	311CJ	A	DTL	0	70		12.0	120	* 6			4.80	60		1.20	12.00	68	315
J-K CLOCKED OR DIRECT	AMEL	311CG	A	DTL	0	100		12.0	120	* 6			4.80	60		1.20	12.00	30	315
J-K CLOCKED OR DIRECT	AMEL	311BG	A	DTL	-55	125		12.0	120	* 6			4.80	60		1.20	12.00	30	315
J-K,AND INPUT	SYL	SF203	A	TTL	0	75		5.0	60		1.20	1.70	.90	11	50	.40	3.00	H,G	
J-K,AND INPUT	SYL	SF200	A	TTL	-55	125		5.0	50		1.20	1.70	.90	11	50	.40	3.00	H,G	
J-K,AND INPUT	SYL	SF201	A	TTL	-55	125		5.0	50		1.20	1.70	.90	11	50	.40	3.00	H,G	
J-K,AND INPUT	SYL	SF202	A	TTL	0	75		5.0	60		1.20	1.70	.90	11	50	.40	3.00	H,G	
J-K,AND-OR INPUTS	TI	SN54H71	B	TTL	-55	125		5.0	95	10	2.00	.80	.40		40	.40	2.40	F	
J-K,AND-OR INPUTS	TI	SN74H71	A	TTL	0	70		5.0	95	10	2.00	.80	.40		40	.40	2.40	F	
J-K,CHRG STRG AND INPUT	TRAN	TFF3243	B	TTL	-55	125		5.0	60	7			1.00	10	20	.30	3.00	H,47	157
J-K,CHRG STRG AND INPUT	TRAN	TFF3244	B	TTL	0	75		5.0	60	7			1.00	10	20	.30	3.00	H,47	157
J-K,CHRG STRG AND INPUT	TRAN	TFF3241	B	TTL	-55	125		5.0	60	15			1.00	10	20	.30	3.00	H,47	157
J-K,CHRG STRG AND INPUT	TRAN	TFF3242	B	TTL	0	75		5.0	60	15			1.00	10	20	.30	3.00	H,47	157
J-K,CHRG STRG EN OR INP	TRAN	TFF3444	B	TTL	0	75		5.0	22	7			1.00	20		.45	2.80	H,47	296
J-K,CHRG STRG EN OR INP	TRAN	TFF3442	B	TTL	0	75		5.0	22	15			1.00	20		.45	2.80	H,47	296
J-K,CHRG STRG EN OR INP	TRAN	TFF3411	B	TTL	-55	125		5.0	40	15	1.20	1.70	1.00	16	30	.45	3.20	H,47	296
J-K,CHRG STRG EN OR INP	TRAN	TFF3443	B	TTL	-55	125		5.0	22	7			1.00	20		.45	2.80	H,47	296
J-K,CHRG STRG EN OR INP	TRAN	TFF3441	B	TTL	-55	125		5.0	22	15			1.00	20		.45	2.80	H,47	296
J-K,CHRG STRG EN OR INP	TRAN	TFF3414	B	TTL	0	75		5.0	40	7	1.20	1.80	1.00	16	30	.45	3.10	H,47	296
J-K,CHRG STRG EN OR INP	TRAN	TFF3412	B	TTL	0	75		5.0	40	15	1.20	1.80	1.00	16	30	.45	3.10	H,47	296
J-K,CHRG STRG EN OR INP	TRAN	TFF3413	B	TTL	-55	125		5.0	40	7	1.20	1.80	1.00	16	30	.45	3.20	H,47	296
J-K,CHRG STRG OR INPUT	TRAN	TFF3314	B	TTL	0	75		5.0	40	7	1.20	1.80	1.00	16	30	.45	3.10	H,47	297

CIRCUIT DESCRIPTION	MFR	MFRS PART NUMBER	TEC H	TYPE OF LOG- IC	OPER TEMP CENTGRDE MIN	MAX	SUPPLY VOLTAGE VDC NO. 2	NO. 1	PWR DIS MW	FAN- OUT	INPUT THRESHOLD VOLTS ZERO	ONE	NOISE IMMU- NITY VOLTS	DELAY NANO- SECS	OPER- ATING SPEED MHZ	OUTPUT LEVEL ZERO	ONE	PACK- AGE TYPE	SCHE- MATIC NO.
J-K,CHRG STRG OR INPUT	TRAN	TFF3343	B	TTL	-55	125		5.0	22	7	1.20	1.70	1.00	16	40	.45	2.80	47	297
J-K,CHRG STRG OR INPUT	TRAN	TFF3312	B	TTL	0	75		5.0	40	15	1.20	1.80	1.00	16	30	.45	3.10	H,47	297
J-K,CHRG STRG OR INPUT	TRAN	TFF3344	B	TTL	0	75		5.0	22	7	1.20	1.70	1.00	16	40	.45	2.80	47	297
J-K,CHRG STRG OR INPUT	TRAN	TFF3341	B	TTL	-55	125		5.0	22	15	1.20	1.70	1.00	16	40	.45	2.80	47	297
J-K,CHRG STRG OR INPUT	TRAN	TFF3342	B	TTL	0	75		5.0	22	15	1.20	1.70	1.00	16	40	.45	2.80	47	297
J-K,CHRG STRG OR INPUT	TRAN	TFF3311	B	TTL	-55	125		5.0	40	15	1.20	1.70	1.00	16	30	.45	3.20	H,47	297
J-K,CHRG STRG OR INPUT	TRAN	TFF3313	B	TTL	-55	125		5.0	40	7	1.20	1.70	1.00	16	30	.45	3.20	H,47	297
J-K,CLCKD OR SET DIRECT	TI	SN530	F	DTL	-55	125		3.5	37	* 10	.30	1.50		45		.30	2.00	74	165V
J-K,CLCKD OR SET DIRECT	PHIL	PL940	A	RTL	-55	125		3.0	15	2	.45	.75	.05	* 100		.30	.80	41	155
J-K,CLCKD OR SET DIRECT	TI	SN7300	F	RCTL	0	70		3.0	27	10	.40	1.70		20		.30	1.70	TF,76	165V
J-K,CLCKD OR SET DIRECT	MOTA	MC816	F	RTL	0	100		3.0	54	3	.55	.84		60	* 8	.40	.84	A	155
J-K,CLCKD OR SET DIRECT	MOTA	MC916	F	RTL	-55	125		3.0	54	3	.56	.82	.02	60	* 8	.30	.84	A	155
J-K,CLCKD OR SET DIRECT	MOTA	MC848G	A	DTL	0	75		5.0		11	1.10	1.90		* 65		.45		B	150
J-K,CLCKD OR SET DIRECT	MOTA	MC948G	A	DTL	-55	125		5.0		9	1.10	2.00		* 65		.40		B	150
J-K,CLCKD OR SET DIRECT	MOTA	MC831G	A	DTL	0	75		5.0		7	1.10	1.90		* 75		.45		B	149
J-K,CLCKD OR SET DIRECT	MOTA	MC845G	A	DTL	0	75		5.0		12	1.10	1.90		* 75		.45		B	150
J-K,CLCKD OR SET DIRECT	MOTA	MC945G	A	DTL	-55	125		5.0		10	1.10	2.00		* 75		.40		B	150
J-K,CLCKD OR SET DIRECT	MOTA	MC931G	A	DTL	-55	125		5.0		7	1.10	2.00		* 75		.40		B	149
J-K,CLCKD OR SET DIRECT	SYL	SF63	B	TTL	0	75		5.0	50	6	1.20	1.70	.75		20	.45	3.00	G,H	345
J-K,CLCKD OR SET DIRECT	SYL	SF62	B	TTL	0	75		5.0	50	12	1.20	1.70	.75		20	.45	3.00	G,H	345
J-K,CLCKD OR SET DIRECT	SYL	SF60	B	TTL	-55	125		5.0	50	15	1.20	1.70	.75		20	.45	3.00	G,H	345
J-K,CLCKD OR SET DIRECT	SYL	SF61	B	TTL	-55	125		5.0	50	7	1.20	1.70	.75		20	.45	3.00	G,H	345
J-K,CLCKD OR SET DIRECT	PHIL	PL9940	A	RTL	-55	125		3.0	15	2					6			A	281
J-K,CLCKD OR SET DIRECT	PHIL	PL9923	A	RTL	15	55		3.6		10					1			A	280
J-K,CLCKD OR SET DIRECT	PHIL	PL9974	A	RTL	-55	125		3.0	54	5	.56	.82	.02		20	.21	.84	A	153
J-K,CLCKD OR SET DIRECT	TRAN	TFF3131	B	TTL	15	55		5.0		7	1.00	2.00	.50	* 25		.50	2.50	47,H	282
J-K,CLOCKED OR DIRECT	RAD	RD207	S	DTL	-55	125		5.0	95	12			.80	16	35			F	325
J-K,CLOCKED OR DIRECT	PHIL	PL9601	A	RTL	-55	125		3.0		4	.49	.82	.06		.03	.35	.88	69	278
J-K,CLOCKED OR DIRECT	TI	SN74H72	A	TTL	0	70		5.0	80	10	2.00	.80	.40		40	.40	2.40	F	
J-K,CLOCKED OR DIRECT	TI	SN54H72	B	TTL	-55	125		5.0	80	10	2.00	.80	.40		40	.40	2.40	F	
J-K,CLOCKED OR DIRECT	TI	SN54L72R	B	TTL	-55	125		5.0		10	2.00	.70	.40	48	2	.30	2.40	F	309
J-K,CLOCKED OR DIRECT	TI	SN74L72R	A	TTL	0	70		5.0		10	2.00	.70	.40	46	2	.30	2.40	F	309
J-K,CLOCKED OR DIRECT	TI	SN5472	A	TTL	-55	125		5.0		10	.80	2.00			15	.40	2.40	F	309
J-K,CLOCKED OR DIRECT	TI	SN14315		DTL	0	75		6.0		9	1.00	2.00	.55	80		.45	3.50	F	167
J-K,CLOCKED OR DIRECT	TI	SN5301	F	DTL	-55	125		3.5	27	10	.30	1.50		30		.30	2.70	F	165
J-K,CLOCKED OR DIRECT	TI	SN14215	B	DTL	-55	125		8.0	56	9			.55	80		.45	3.50	F	167
J-K,CLOCKED OR DIRECT	TI	SN7432	A	TTL	0	70		5.0		10	.80	2.00	.40		15	.40	2.40	F	309
J-K,CLOCKED OR DIRECT	ITT	M1C945	A	DTL	-55	125		5.0	*70	* 10	1.10	1.90	.50	35		.40	3.10	C,B,H	150
J-K,CLOCKED OR DIRECT	SILX	SI945	A	DTL	-55	125		4.0	42	9				50				F	150
J-K,CLOCKED OR DIRECT	ITT	M1C948	A	DTL	-55	125		5.0	*81	* 9	1.10	1.90	.50	30		.40	3.10	C,B,H	150
J-K,CLOCKED OR DIRECT	SILX	SI948	A	DTL	-55	125		5.0	48	8				40				F	150
J-K,CLOCKED OR DIRECT	SILX	SI931	A	DTL	-55	125		4.0	20	7	1.03	1.33		50		.23		F	150
J-K,CLOCKED OR DIRECT	AMEL	5098	A	TTL	-55	125		5.0	6	* 6			1.00	180		.25	3.80	C	
J-K,CLOCKED OR DIRECT	AMEL	5398	A	TTL	-55	125		5.0	14	* 6			1.00	100		.25	3.80	C	
J-K,CLOCKED OR DIRECT	AMEL	5798	A	TTL	-55	125		5.0	30	* 9			1.00	20		.25	3.80	C	
J-K,CLOCKED OR DIRECT	PHIL	PL945	A	DTL	-55	125		4.0	42	9				50				41	150
J-K,CLOCKED OR DIRECT	PHIL	PL948	A	DTL	-55	125		5.0	48	8				40				41	
J-K,CLOCKED OR DIRECT	SW	SW948	A	DTL	-55	125		5.0	45	* 10	.95	2.00	.55			.40	2.60	19,C	150

CIRCUIT DESCRIPTION	MFR	MFRS PART NUMBER	T E C H	TYPE OF LOG- IC	OPER TEMP CENTGRDE MIN	MAX	SUPPLY VOLTAGE VDC NO. 2	NO. 1	PWR DIS MW	FAN- OUT	INPUT THRESHOLD VOLTS ZERO	ONE	NOISE IMMU- NITY VOLTS	OPER- DELAY NANO- SECS	ATING SPEED MHZ	OUTPUT LEVEL ZERO	ONE	PACK- AGE TYPE	SCHE- MATIC NO.
J-K,CLOCKED OR DIRECT	FSC	L926	A	RTL	-55	125		3.0	56	5	.56	.82		40	20	.30		B,S	153
J-K,CLOCKED OR DIRECT	FSC	FL92629	A	RTL	15	55		3.6	55	16				40				B	155
J-K,CLOCKED OR DIRECT	FSC	FL92329	A	RTL	15	55		3.6	54	10				40				A	155
J-K,CLOCKED OR DIRECT	MOTA	MC308	A	ECL	-55	125		-5.2	52					12	30	1.56	.82	10,S	154
J-K,CLOCKED OR DIRECT	MOTA	MC358	A	ECL	0	75		-5.2	52					10	30	1.55	.75	10,C	154
J-K,CLOCKED OR DIRECT	FSC	FL92328	A	RTL	15	55		3.6	54	8				40				A	155
J-K,CLOCKED OR DIRECT	FSC	L926C	A	RTL	0	100		3.0	56	5	.55	.84		40	20	.40		B,S	153
J-K,CLOCKED OR DIRECT	FSC	FL94529	A	DTL	0	70		4.0	42	9				50				B,C	150
J-K,CLOCKED OR DIRECT	FSC	DTL945	A	DTL	-55	125		4.0	42	9				50				C,B	150
J-K,CLOCKED OR DIRECT	TRAN	TFF3114	B	TTL	0	75		4.0	75	7	1.20	1.70	.70		20	.45	2.40	47,H	158
J-K,CLOCKED OR DIRECT	TRAN	TFF3113	B	TTL	-55	125		4.0	75	7	1.20	1.70	.70		20	.45	2.40	47,H	158
J-K,CLOCKED OR DIRECT	SYL	SF51	A	TTL	-55	125		5.0	50	7	1.20	1.70	.75	19	20	.45	3.20	G,H	157
J-K,CLOCKED OR DIRECT	FSC	DTL948	A	DTL	-55	125		5.0	48	8				40				C,B	150
J-K,CLOCKED OR DIRECT	FSC	FL94829	A	DTL	0	70		5.0	48	8				40					
J-K,CLOCKED OR DIRECT	SYL	SF50	A	TTL	-55	125		5.0	50	15	1.20	1.70	.75	19	20	.45	3.20	G,H	157
J-K,CLOCKED OR DIRECT	FSC	DTL931	A	DTL	-55	125		4.0	20	7	1.0T	1.3T		50		.2T		C	149
J-K,CLOCKED OR DIRECT	TI	SN5470	A	TTL	-55	125		5.0	70	10	.80	2.00	.40		25	.40	2.40	F	
J-K,CLOCKED OR DIRECT	PHIL	PL916	A	RTL	-55	125		3.0	54	3	.56	.82		35		.30		A,69	155
J-K,CLOCKED OR DIRECT	SIGN	SU320	A	TTL	-55	125		4.5	90	* 17	.80	2.70	.20	76		.60	3.30	S,B	156
J-K,CLOCKED OR DIRECT	SIGN	LU320	A		-55	125		4.5	90	* 17	.80	2.70	.20	65		.60	3.30	B	156
J-K,CLOCKED OR DIRECT	TRAN	TFF3112	B	TTL	-55	125		5.0	75	15	1.20	1.70	.70		20	.45	2.40	47,H	158
J-K,CLOCKED OR DIRECT	WMED	WM503	A	DTL	-55	125		4.5	47	10				20	20	.40		F	159
J-K,CLOCKED OR DIRECT	TRAN	TFF3111	B	TTL	0	75		5.0	75	15	1.20	1.70	.70		20	.45	2.40	47,H	158
J-K,CLOCKED OR DIRECT	SYL	SF53	A	TTL	0	75		5.0	50	6	1.20	1.70	.80	19		.40	3.20	G,H	157
J-K,CLOCKED OR DIRECT	SYL	SF52	A	TTL	0	75		5.0	50	12	1.20	1.70	.80	19		.40	3.20	G,H	157
J-K,CLOCKED OR DIRECT	FSC	FL93129	A	DTL	0	70		4.0	20	7	1.0T	1.3T		50		.2T		B,C	149
J-K,CLOCKED OR DIRECT	PHIL	PL931	A	DTL	-55	125		5.0		7	1.00	1.30	.60	80	10	.40	2.60	41	149
J-K,CLOCKED OR DIRECT	TI	SN7470	F	TTL	0	70		5.0	70	* 10	.80	2.00	.40	30		.40	2.40	F,76	
J-K,CLOCKED OR DIRECT	TI	SN7301	F	RCTL	0	70		3.0	27	10	.40	1.70		20		.30	1.70	F,T,76	165
J-K,CLOCKED OR DIRECT	SW	SW931	A	DTL	-55	125		5.0	35	9	.95	2.00	.55		8	.40	2.60	19,C	149
J-K,CLOCKED OR DIRECT	SW	SW945	A	DTL	-55	125		5.0	45	# 10	.95	2.00	.55			.40	2.60	19,C	150
J-K,CLOCKED OR DIRECT	SPER	926	A	RTL	-55	125		3.0	56	5	.56	.82		35	20	.30		A,S	153
J-K,CLOCKED OR DIRECT	SW	SW308	A	ECL	-55	125		-5.2	52					10	30	1.56	.82	19,S	154
J-K,CLOCKED OR DIRECT	SW	SWF53	A	TTL	0	75		5.0	50	6					20			C	157
J-K,CLOCKED OR DIRECT	MOTA	MC948F	A	DTL	-55	125		5.0		9	1.10	2.00		* 65		.40		C	150
J-K,CLOCKED OR DIRECT	MOTA	MC845F	A	DTL	0	75		5.0		12	1.10	1.90		* 75		.45		C	150
J-K,CLOCKED OR DIRECT	MOTA	MC945F	A	DTL	-55	125		5.0		10	1.10	2.00		* 75		.40		C	150
J-K,CLOCKED OR DIRECT	MOTA	MC848F	A	DTL	0	75		5.0		11	1.10	1.90		* 65		.45		C	150
J-K,CLOCKED OR DIRECT	MOTA	MC931F	A	DTL	-55	125		5.0		7	1.10	2.00		* 75		.40		C	149
J-K,CLOCKED OR DIRECT	MOTA	MC831F	A	DTL	0	75		5.0		7	1.10	1.90		* 75		.45		C	149
J-K,CLOCKED OR DIRECT	SW	SWF51	A	TTL	-55	125		5.0	50	7					20			C	157
J-K,CLOCKED OR DIRECT	SW	SWF50	A	TTL	-55	125		5.0	50	15					20			C	157
J-K,CLOCKED OR DIRECT	SW	SWF52	A	TTL	0	75		5.0	50	12					20			C	157
J-K,CLOCKED OR DIRECT	WMED	WM225	A	TTL	-55	125		6.0	*55	10	1.00	2.00	.55	60	14	.45	3.30	F	270
J-K,CLOCKED OR DIRECT	PHIL	PL9926	A	RTL	-55	125		3.0	56	5	.56	.82	.02		20	.21	.84	B	153
J-K,CLOCKED OR DIRECT	PHIL	PL9600	A	RTL	-55	125		3.0		4	.49	.82	.06		30	.35	.88	69	278
J-K,CLOCKED OR DIRECT	TRAN	TFF3127	B	TTL	-55	125		5.0		7	1.20	1.70	.70	* 18		.45	2.40	47,H	282
J-K,CLOCKED OR DIRECT	TRAN	TFF3128	B	TTL	0	75		5.0		7	1.20	1.70	.70	* 18		.45	2.40	47,H	282

CIRCUIT DESCRIPTION	MFR	MFRS PART NUMBER	T E C H	TYPE OF LOG- IC	OPER TEMP CENTGRDE MIN	MAX	SUPPLY VOLTAGE VDC NO. 2	NO. 1	PWR DIS MW	FAN- OUT	INPUT THRESHOLD VOLTS ZERO	ONE	NOISE IMMU- NITY VOLTS	DELAY NANO- SECS	OPER- ATING SPEED MHZ	OUTPUT LEVEL ZERO	ONE	PACK- AGE TYPE	SCHE- MATIC NO.
J-K,CLOCKED OR DIRECT	TRAN	TFF3126	B	TTL	0	75		5.0		15	1.20	1.70	.70	* 18		.45	2.40	47,H	282
J-K,CLOCKED OR DIRECT	TRAN	TFF3125	B	TTL	-55	125		5.0		15	1.20	1.70	.70	* 18		.45	2.40	47,H	282
J-K,CLOCKED OR DIRECT	TRAN	TFF3213	B	TTL	-55	125		5.0		7	1.20	1.70	.70	* 18		.45	2.40	47,H	157
J-K,CLOCKED OR DIRECT	TRAN	TFF3212	B	TTL	0	75		5.0		15	1.20	1.70	.70	* 18		.45	2.40	47,H	157
J-K,CLOCKED OR DIRECT	TRAN	TFF3211	B	TTL	-55	125		5.0		15	1.20	1.70	.70	* 18		.45	2.40	47,H	157
J-K,CLOCKED OR DIRECT	TRAN	TFF3124	B	TTL	0	75		5.0		7	1.20	1.70	.70	* 18		.45	2.40	47,H	282
J-K,CLOCKED OR DIRECT	TRAN	TFF3122	B	TTL	0	75		5.0		15	1.20	1.70	.70	* 18		.45	2.40	47,H	282
J-K,CLOCKED OR DIRECT	TRAN	TFF3123	B	TTL	-55	125		5.0		7	1.20	1.70	.70	* 18		.45	2.40	47,H	282
J-K,CLOCKED OR DIRECT	TRAN	TFF3121	B	TTL	-55	125		5.0		15	1.20	1.70	.70	* 18		.45	2.40	47,H	282
J-K,CLOCKED OR DIRECT	TRAN	TFF3118	B	TTL	0	75		5.0		7	1.20	1.70	.70	* 18		.45	2.40	47,H	158
J-K,CLOCKED OR DIRECT	TRAN	TFF3116	B	TTL	0	75		5.0		15	1.20	1.70	.70	* 18		.45	2.40	47,H	158
J-K,CLOCKED OR DIRECT	TRAN	TFF3117	B	TTL	-55	125		5.0		7	1.20	1.70	.70	* 18		.45	2.40	47,H	158
J-K,CLOCKED OR DIRECT	TRAN	TFF3214	B	TTL	0	75		5.0		7	1.20	1.70	.70	* 18		.45	2.40	47,H	157
J-K,CLOCKED OR DIRECT	TRAN	TFF3115	B	TTL	-55	125		5.0		15	1.20	1.70	.70	* 18		.45	2.40	47,H	158
J-K,CLOCKED OR DIRECT	FSC	LPDT9040	A	DTL	-55	125		5.0	E35	10	.90	1.70	.70		2.50	.20	2.70	C,H	288
J-K,CLOCKED OR DIRECT	SIGN	SE825	A	TTL	-55	125		5.0	70					30		.20	2.40	X	294
J-K,CLOCKED OR DIRECT	SIGN	SE125	A	DTL	-55	125	4.0	-2.0	20	7	1.22	1.48	1.00		20	.22	3.80	X	293
J-K,CLOCKED OR SET DIR	PHIL	264JK	A	DTL	-55	125		5.0	45	10	1.10	2.00	.60	25	21	.40	2.60	G,B	
J-K,DUAL CLOCKED	TRAN	TFF3273	B	TTL	-55	125		5.0	40	7	1.20	1.80	1.00	16	30	.45	3.10	H,47*	296
J-K,DUAL CLOCKED	TRAN	TFF3274	B	TTL	0	75		5.0	40	7	1.20	1.80	1.00	16	30	.45	3.10	H,47*	296
J-K,DUAL CLOCKED	TRAN	TFF3173	B	TTL	-55	125		5.0	75	7	1.20	1.70	1.00	16	30	.40	3.20	H,47*	282
J-K,DUAL CLOCKED	TRAN	TFF3174	B	TTL	0	75		5.0	75	7	1.20	1.80	1.00	16	30	.40	3.10	H,47*	282
J-K,DUAL CLOCKED OR DIR	PHIL	PL4M01	K	MOS	-55	125	-12.0	-24.0	100		3.00	9.00	1.00	550	.50	2.00	10.00	88	160
J-K,DUAL CLOCKED OR DIR	TI	SN5473	A	TTL	-55	125		5.0		10	.80	2.00				.40	2.40	F	309
J-K,DUAL CLOCKED OR DIR	TI	SN7476N		TTL	0	70		5.0		10	.80	2.00	.40	30	15	.40	2.40	67	309
J-K,DUAL CLOCKED OR DIR	TI	SN7473	A	TTL	0	70		5.0		10	.80	2.00	.40		15	.40	2.40	F	309
J-K,DUAL CLOCKED OR DIR	TI	SN5302	F	DTL	-55	125		3.5	37	* 10	.30	1.50		45		.30	2.00	F	165V
J-K,DUAL CLOCKED OR DIR	TI	SN5304	F	DTL	-55	125		3.5	37	* 10	.30	1.50		45		.30	2.00	F	165
J-K,DUAL CLOCKED OR DIR	TI	SN7302	F	RCTL	0	70		3.0	27	10	.40	1.70		20		.30	1.70	F,T,76	165V
J-K,DUAL CLOCKED OR DIR	TI	SN7304	F	RCTL	0	70		3.0	27	10	.40	1.70		20		.30	1.70	F,T,76	165
J-K,DUAL COMMON CLOCK	SYL	SF132	A	TTL	0	75		5.0	60		1.10	1.80	.90	11	50	.40	3.00	H,G	
J-K,DUAL COMMON CLOCK	SYL	SF130	A	TTL	-55	125		5.0	50		1.20	1.70	.90	11	50	.40	3.00	H,G	
J-K,DUAL COMMON CLOCK	SYL	SF133	A	TTL	0	75		5.0	60		1.10	1.80	.90	11	50	.40	3.00	H,G	
J-K,DUAL COMMON CLOCK	SYL	SF131	A	TTL	-55	125		5.0	50		1.20	1.70	.90	11	50	.40	3.00	H,G	
J-K,DUAL COMMON CLOCK	SYL	SF111	A	TTL	-55	125		5.0	50		1.20	1.70	.90	11	35	.40	3.00	H,G	
J-K,DUAL COMMON CLOCK	SYL	SF112	A	TTL	0	75		5.0	60		1.10	1.80	.90	11	35	.40	3.00	H,G	
J-K,DUAL COMMON CLOCK	SYL	SF110	A	TTL	-55	125		5.0	50		1.20	1.70	.90	11	35	.40	3.00	H,G	
J-K,DUAL COMMON CLOCK	SYL	SF113	A	TTL	0	75		5.0	60		1.10	1.80	.90	11	35	.40	3.00	H,G	
J-K,DUAL SEPARATE CLOCK	SYL	SF122	A	TTL	0	75		5.0	60		1.10	1.80	.90	11	50	.40	3.00	H,G	
J-K,DUAL SEPARATE CLOCK	SYL	SF123	A	TTL	0	75		5.0	60		1.10	1.80	.90	11	50	.40	3.00	H,G	
J-K,DUAL SEPARATE CLOCK	SYL	SF101	A	TTL	-55	125		5.0	50		1.20	1.70	.90	11	35	.40	3.00	H,G	
J-K,DUAL SEPARATE CLOCK	SYL	SF100	A	TTL	-55	125		5.0	50		1.20	1.70	.90	11	35	.40	3.00	H,G	
J-K,DUAL SEPARATE CLOCK	SYL	SF103	A	TTL	0	75		5.0	60		1.10	1.80	.90	11	35	.40	3.00	H,G	
J-K,DUAL SEPARATE CLOCK	SYL	SF102	A	TTL	0	75		5.0	60		1.10	1.80	.90	11	35	.40	3.00	H,G	
J-K,DUAL SEPARATE CLOCK	SYL	SF121	A	TTL	-55	125		5.0	50		1.20	1.70	.90	11	50	.40	3.00	H,G	
J-K,DUAL SEPARATE CLOCK	SYL	SF120	A	TTL	-55	125		5.0	50		1.20	1.70	.90	11	50	.40	3.00	H,G	
J-K,OR INPUT	SYL	SF211	A	TTL	-55	125		5.0	60		1.10	1.70	.90	11	50	.40	3.00	H,G	
J-K,OR INPUT	SYL	SF212	A	TTL	0	75		5.0	50		1.10	1.70	.90	11	50	.40	3.00	H,G	

CIRCUIT DESCRIPTION	MFR	MFRS PART NUMBER	TECH	TYPE OF LOGIC	OPER TEMP CENTGRDE MIN	OPER TEMP CENTGRDE MAX	SUPPLY VOLTAGE VDC NO. 2	SUPPLY VOLTAGE VDC NO. 1	PWR DIS MW	FAN-OUT	INPUT THRESHOLD VOLTS ZERO	INPUT THRESHOLD VOLTS ONE	NOISE IMMUNITY VOLTS	DELAY NANO-SECS	OPERATING SPEED MHZ	OUTPUT LEVEL ZERO	OUTPUT LEVEL ONE	PACKAGE TYPE	SCHEMATIC NO.
J-K,OR INPUT	SYL	SF210	A	TTL	-55	125		5.0	60		1.10	1.70	.90	11	50	.40	3.00	H,G	
J-K,OR INPUT	SYL	SF213	A	TTL	0	75		5.0	50		1.10	1.70	.90	11	50	.40	3.00	H,G	
J-K,SP CLOCKED OR DIR	SILX	A03	A	DTL	-55	125		5.0	40	* 5	1.70	2.70	.70	50		1.00	4.60	20,46	
J-K,SP CLOCKED OR DIR	RAY	RM215	A	DTL	-55	125		6.0	45	# 9	.60	1.10	.30	80	5	.30	3.50	FS,21	167
J-K,SP CLOCKED OR DIR	WMED	WM215	A	DTL	-55	125		6.0	45	9	.70	1.80	.40	80	5	.30	3.50	21,FS	167
J-K,SP CLOCKED OR DIR	RCA	CD2203	A	DTL	-55	125		4.0	8	* 5				167		.25	3.23	82	151
J-K,SP CLOCKED OR DIR	SILX	A09	A	DTL	-55	125		5.0	54	* 5	1.70	2.70	.70	42	10	1.00	4.60	20,F	
J-K,SP CLOCKED OR DIR	WMED	WC215	A	DTL	0	75		6.0	45	7	1.00	1.80		30	4	.45			167
J-KTCLOCKED OR DIRECT	RAD	RD307	S	DTL	-55	125		5.0	95	8			.80	16	35			F	325
LAMP DRIVER DUAL 4 INP	TRAN	TNG5412	B	TTL	0	75		5.0			1.20	1.70	1.00	18		.60	3.10	H,47	
LAMP DRIVER DUAL 4 INP	TRAN	TNG5411	B	TTL	-55	125		5.0			1.20	1.70	1.00	18		.60	3.10	H,47	
LAMP DRIVER QUAD 2 INP	TRAN	TNG5611	B	TTL	-55	125		5.0			1.20	1.70	1.00	18		.60	3.10	H,47	
LAMP DRIVER QUAD 2 INP	TRAN	TNG5612	B	TTL	0	75		5.0			1.20	1.70	1.00	18		.60	3.10	H,47	
LAMP DRIVER 2 INPUT	TRAN	TNG5326	B	TTL	0	75		5.0			1.20	1.70	1.00	18		.40	3.10	H,47	
LAMP DRIVER 2 INPUT	TRAN	TNG5325	B	TTL	-55	125		5.0			1.20	1.70	1.00	18		.40	3.10	H,47	
LAMP DRIVER 2 INPUT	TRAN	TNG5421	B	TTL	-55	125		5.0	60	60MA	1.20	1.70						H,47	00206
LAMP DRIVER 2 INPUT	TRAN	TNG5422	B	TTL	0	75		5.0	60	60MA	1.20	1.70						H,47	00206
LAMP DRIVER,4 INPUT	TRAN	TNG5321	B	TTL	-55	125		5.0	60	60MA	1.20	1.70						H,47	00206
LAMP DRIVER,4 INPUT	TRAN	TNG5322	B	TTL	0	75		5.0	60	60MA	1.20	1.70						H,47	00206
LEVEL TRANSLATOR	TI	SN343	F	DTL	0	65	E 6.0	-3.0	*30			2.50		500		.70	5.70	F	161
LEVEL TRANSLATOR	WMED	WS815	A	DTL	0	70	20.0	4.0	*60		1.50	5.50	1.05			.45	2.00	S	166
LEVEL TRANSLATOR	WMED	WM208	A		-55	125		6.0	14						1	.30	2.50	21,FS	164
LEVEL TRANSLATOR	WMED	WS150	A	DTL	-55	125	10.0	-6.4	100							- 6.3	6.30	S	163
LEVEL TRANSLATOR	WMED	WC208	A	DTL	0	75		6.0	8	6	1.00	1.80		30		.45		21,F	164
LEVEL TRANSLATOR,DUAL	TI	SN346	F		0	65	D 6.0	- 12.0	160	11				850		1.80	.95	F	162
LINE DRIVER DUAL 4 INP	TRAN	TNG5212	B	TTL	0	75		5.0		40	1.20	1.80	1.00	18		.40	3.10	H,47	
LINE DRIVER DUAL 4 INP	TRAN	TNG5213	B	TTL	-55	125		5.0		24	1.20	1.80	1.00	18		.40	3.10	H,47	
LINE DRIVER DUAL 4 INP	TRAN	TNG5214	B	TTL	0	75		5.0		24	1.20	1.80	1.00	18		.40	3.10	H,47	
LINE DRIVER DUAL 4 INP	TRAN	TNG5211	B	TTL	-55	125		5.0		40	1.20	1.80	1.00	18		.40	3.10	H,47	
LINE DRIVER QUAD 2 INP	TRAN	TNG5512	B	TTL	0	75		5.0		40	1.20	1.80	1.00	18		.40	3.10	H,47	
LINE DRIVER QUAD 2 INP	TRAN	TNG5513	B	TTL	-55	125		5.0		24	1.20	1.80	1.00	18		.40	3.10	H,47	
LINE DRIVER QUAD 2 INP	TRAN	TNG5514	B	TTL	0	75		5.0		24	1.20	1.80	1.00	18		.40	3.10	H,47	
LINE DRIVER QUAD 2 INP	TRAN	TNG5511	B	TTL	-55	125		5.0		40	1.20	1.80	1.00	18		.40	3.10	H,47	
LINE DRIVER 2 INPUT	TRAN	TNG5125	B	TTL	-55	125		5.0		40	1.20	1.80	1.00	18		.60	3.10	H,47	
LINE DRIVER 2 INPUT	TRAN	TNG5126	B	TTL	0	75		5.0		40	1.20	1.80	1.00	18		.80	3.10	H,47	
LINE DRIVER 2 INPUT	TRAN	TNG5127	B	TTL	-55	125		5.0		24	1.20	1.80	1.00	18		.40	3.10	H,47	
LINE DRIVER 2 INPUT	TRAN	TNG5128	B	TTL	0	75		5.0		24	1.20	1.80	1.00	18		.40	3.10	H,47	
LINE RECEIVER	SILX	SC126	A		-55	125	12.0	5.0						40				F	336
MULTIVIBRATOR	AMEL	4002B	F	RTL	-55	125		3.0	20	* 5			.26			.25	.81	B,C	
MULTIVIBRATOR	AMEL	4002A	F	RTL	-55	125		3.0	20	* 9			.30			.25	.81	B,C	
MULTIVIBRATOR	AMEL	4002C	F	RTL	0	70		3.0	20	* 4			.25			.25	.81	B	
MULTIVIBRATOR MONO	TI	SN15851		DTL	0	75		5.0		10				20		.45	2.60	F	305
MULTIVIBRATOR MONO	TI	SN15951		DTL	-55	125		5.0		10				20		.40	2.60	F	305
MULTIVIBRATOR 2-1SHOT	AMEL	342CG	A	DTL	0	100		12.0	100	6			4.80	60		1.20	12.00	30	306
MULTIVIBRATOR 2-1SHOT	AMEL	342CJ	A	DTL	0	70		12.0	100	6			4.80	60		1.20	12.00	68	306
MULTIVIBRATOR 2-1SHOT	AMEL	342BG	A	DTL	-55	125		12.0	100	6			4.80	60		1.20	12.00	30	306
MULTIVIBRATOR,FREE-RUN	INTX	MVXXXXX	L	TRL	-55	125		12.0	107	3,3					* 1			78	168
MULTIVIBRATOR,MONO	TI	SN15851N	A	DTL	0	75		5.0		10				25		.45	2.60	H	305

CIRCUIT DESCRIPTION	MFR	MFRS PART NUMBER	T E C H	TYPE OF LOG- IC	OPER TEMP CENTGRDE MIN	OPER TEMP CENTGRDE MAX	SUPPLY VOLTAGE VDC NO. 2	SUPPLY VOLTAGE VDC NO. 1	PWR DIS MW	FAN- OUT	INPUT THRESHOLD VOLTS ZERO	INPUT THRESHOLD VOLTS ONE	NOISE IMMU- NITY VOLTS	DELAY NAND- SECS	OPER- ATING SPEED MHZ	OUTPUT LEVEL ZERO	OUTPUT LEVEL ONE	PACK- AGE TYPE	SCHE- MATIC NO.
MULTIVIBRATOR,MONO	ITT	M1C951	A	DTL	-55	125		5.0	35	10				25				C,B,H	323
MULTIVIBRATOR,MONO	TI	SN5380	F	RCTL	-55	125		3.0	14	* 10	.30	1.70		90		.30	1.70	T	176
MULTIVIBRATOR,MONO	TI	SN7380	F	RCTL	0	70		3.0		10	.40	1.70		90		.30	1.70	FT,76	176
MULTIVIBRATOR,MONO	GI	PC18	H	DTL	-55	125	12.0	4.2	*D2	* 8		3.00		25	10	.30	5.00	90	172
MULTIVIBRATOR,MONO	GI	NCPC16	H	DTL	-55	125	12.0	4.2	*D2	* 8		3.00		25	10	.30	5.00	0,90	172
MULTIVIBRATOR,MONO	VARO	8203	E	DTL	-55	125	6.0	3.0	185	4		3.00		* 30	10	.50	3.50	72	178
MULTIVIBRATOR,MONO	MEPC	640704	M	DTL	-55	125	6.0	-3.0		5				10	5			60	229
MULTIVIBRATOR,MONO	FSC	FL95129	A	DTL	0	70		5.0	35	10				25					
MULTIVIBRATOR,MONO	FSC	SE160	A	DTL	-55	125		4.0	*32					19				B,S	174
MULTIVIBRATOR,MONO	TI	SN518	F	RCTL	-55	125		3.0	2	5	.22	1.15		800		.22	1.15	T	177
MULTIVIBRATOR,MONO	TI	SN1005	F	DTL	-55	125		3.0	30	* 10	.30	1.70		* 75		.30	1.70	58	
MULTIVIBRATOR,MONO	SILX	A08	A	DTL	-55	125		5.0	42	* 5	1.70	2.70		40	4	1.00		20,80	
MULTIVIBRATOR,MONO	GESP	12X248	A		-55	125		6.0	*D3								5.50	2	171
MULTIVIBRATOR,MONO	FSC	DTL951	A	DTL	-55	125		5.0	35	10				25				C	
MULTIVIBRATOR,MONO	SIGN	SE161	A	DTL	-55	125		4.0	*40	5				45		.40	3.90	B,X	175
MULTIVIBRATOR,MONO	SIGN	SE160	A	DTL	-55	125	4.0	-2.0	*32	4				45		.40	3.90	B,S	174
MULTIVIBRATOR,MONO	WMED	WS840	A	DTL	-55	125				* 6								S	
MULTIVIBRATOR,MONO	SPRG	US-0108	F		-55	125		3.0	4	* 6								57	
MULTIVIBRATOR,MONO	INTX	DMXXXXX	L	TRL	-55	125		9.0	180	* 6								78	173
NAND DUAL 4 INPUT	TI	SN5440	A	TTL	-55	125		5.0	10	30	.80	2.00	.40	13		.40	2.40	F	205
NAND DUAL 4 INPUT	TI	SN5420	A	TTL	-55	125		5.0	10	10	.80	2.00	.40	13		.40	2.40	F	195
NAND DUAL 4 INPUT	RCA	CD2202	A	DTL	-55	125		4.0	12	*25	.85	1.80	.60	48		.25	3.23	82	188
NAND NOR TRIPLE 3 INPUT	TI	SN14216	B	DTL	-55	125		6.0	11	11			.55	23		.45	5.80	F	196 A
NAND QUAD 2 INPUT	TI	SN5400	A	TTL	-55	125		5.0	10	10	.80	2.00	.40	13		.40	2.40	F	195
NAND TRIPLE 3 INPUT	TI	SN5410	A	TTL	-55	125		5.0	10	10	.80	2.00	.40	13		.40	2.40	F	195
NAND TRIPLE 3 INPUT	TI	SN54962	B	TTL	-55	125		5.0	10	10	.80	2.00	.40	13		.40	2.40	F	195
NAND 8 INPUT	TI	SN54965	B	TTL	-55	125		5.0	10	10	.80	2.00	.40	13		.40	2.40	F	195
NAND-OR,2-2-2 INPUT	GI	MEM901	K				- 12.0	- 24.0	20		6.00	3.00	2.00	250		10.0	.20	18,82	266
NAND/AND/NOR,5 INPUT EX	TI	SN531	F	DTL	-55	125		3.5	18	* 10	.30	1.70		25		.30	2.20	74	105
NAND/NOR DUAL 4 INP EX	TI	SN14361		DTL	0	75		6.0		11	1.00	2.00	.55	40		.45	5.80	F	196
NAND/NOR DUAL 4 INP EX	TI	SN14331		DTL	0	75		6.0		11	1.00	2.00	.55	32		.45	5.80	F	196 A
NAND/NOR DUAL 4 INP EX	TI	SN14261	B	DTL	-55	125		6.0	20	11			.55	32		.45	5.80	F	196
NAND/NOR DUAL 4 INP EX	TI	SN14231	B	DTL	-55	125		6.0	11	11			.55	23		.45	5.80	F	196 A
NAND/NOR DUAL 4 INPUT	TI	SN15930		DTL	-55	125		5.0	5	8				25		.40	2.60	F	192
NAND/NOR DUAL 4 INPUT	NSC	ND030	A	DTL	-55	125		5.0	16	*10	2.00	1.10	1.00	30		.40	2.60	76,C	192
NAND/NOR QUAD 2 INPUT	TI	SN15846N	A	DTL	0	75		5.0	5	8				30		.45	2.60	H	192
NAND/NOR QUAD 2 INPUT	TI	SN14346		DTL	0	75		6.0		11	1.00	2.00	.55	32		.45	5.80	F	196 A
NAND/NOR QUAD 2 INPUT	TI	SN14366		DTL	0	75		6.0		11	1.00	2.00	.55	40		.45	5.80	F	196
NAND/NOR QUAD 2 INPUT	TI	SN15846		DTL	0	75		5.0	5	8				25		.45	2.60	F	192
NAND/NOR QUAD 2 INPUT	TI	SN15946		DTL	-55	125		5.0	5	8				25		.40	2.60	F	192
NAND/NOR QUAD 2 INPUT	TI	SN14266	B	DTL	-55	125		6.0	20	11			.55	32		.45	5.80	F	196
NAND/NOR QUAD 2 INPUT	NSC	ND046	A	DTL	-55	125		5.0	32	*10	2.00	1.10	1.00	30		.40	2.60	76,C	192
NAND/NOR QUAD 2 INPUT	TI	SN14246	B	DTL	-55	125		6.0	11	11			.55	23		.45	5.80	F	196 A
NAND/NOR TRIPLE 3 INP	TI	SN14316		DTL	0	75		6.0		11	1.00	2.00	.55	32		.45	5.80	F	196 A
NAND/NOR TRIPLE 3 INP	TI	SN14336		DTL	0	75		6.0		11	1.00	2.00	.55	40		.45	5.80	F	196
NAND/NOR TRIPLE 3 INP	TI	SN15962		DTL	-55	125		5.0	5	8				25		.40	2.60	F	192
NAND/NOR TRIPLE 3 INPUT	TI	SN15862N	A	DTL	0	75		5.0	5	8				30		.45	2.60	H	192
NAND/NOR TRIPLE 3 INPUT	TI	SN15862		DTL	0	75		5.0	5	8				25		.45	2.60	F	192

CIRCUIT DESCRIPTION	MFR	MFRS PART NUMBER	T E C H	TYPE OF LOG- IC	OPER TEMP CENTGRDE MIN	OPER TEMP CENTGRDE MAX	SUPPLY VOLTAGE VDC NO. 2	SUPPLY VOLTAGE VDC NO. 1	PWR DIS MW	FAN- OUT	INPUT THRESHOLD VOLTS ZERO	INPUT THRESHOLD VOLTS ONE	NOISE IMMU- NITY VOLTS	DELAY NANO- SECS	OPER- ATING SPEED MHZ	OUTPUT LEVEL ZERO	OUTPUT LEVEL ONE	PACK- AGE TYPE	SCHE- MATIC NO.
NAND/NOR TRIPLE 3 INPUT	NSC	ND062	A	DTL	-55	125		5.0	24	*10	2.00	1.10	1.00	30		.40	2.60	76,C	192
NAND/NOR TRIPLE 3 INPUT	TI	SN14236	B	DTL	-55	125		6.0	20	11			.55	32		.45	5.80	F	196
NAND/NOR TRIPLE2-3-3 EX	TI	SN14226	B	DTL	-55	125		6.0	20	11			.55	32		.45	5.80	F	196
NAND/NOR TRIPLE2-3-3 EX	TI	SN14206	B	DTL	-55	125		6.0	11	11			.55	23		.45	5.80	F	196 A
NAND/NOR TRIPLE2-3-3INP	TI	SN14326		DTL	0	75		6.0		11	1.00	2.00	.55	40		.45	5.80	F	196
NAND/NOR TRIPLE2-3-3INP	TI	SN14306		DTL	0	75		6.0		11	1.00	2.00	.55	32		.45	5.80	F	196 A
NAND/NOR 10 INPUT EX	TI	SN5315	F	DTL	-55	125		3.5	12	10	.30	1.70		30		.30	2.70	F	308
NAND/NOR 2-4 INP BUFFER	TI	SN15832N		DTL	0	75		5.0		25				30		.45	2.40	H	187
NAND/NOR 2-4INP BUFFER	TI	SN15932		DTL	-55	125		5.0	5	25				25		.40	2.60	F	187
NAND/NOR 2-4INP BUFFER	TI	SN15832		DTL	0	75		5.0	5	25				25		.45	2.60	F	187
NAND/NOR 4 INP POWER	TI	SN15844N		DTL	0	75		5.0		27				30		.45		H	185
NAND/NOR 4 INP POWER	TI	SN15844		DTL	0	75		5.0	5	27				25		.45	6.00	F	185
NAND/NOR 4 INP POWER	TI	SN15944		DTL	-55	125		5.0	5	27				25		.45	6.00	F	185
NAND/NOR 8 INPUT EX	SYL	SG200	A	TTL	-55	125		5.0	22		1.10	1.70		11		.40	3.10	H,G	205
NAND/NOR 8 INPUT EX	SYL	SG201	A	TTL	-55	125		5.0	22		1.10	1.70		11		.40	3.10	H,G	205
NAND/NOR 8 INPUT EX	SYL	SG202	A	TTL	0	75		5.0	22		1.10	1.80		11		.40	3.00	H,G	205
NAND/NOR 8 INPUT EX	SYL	SG203	A	TTL	0	75		5.0	22		1.10	1.80		11		.40	3.00	H,G	205
NAND/NOR 8 INPUT EX	TI	SN14224	B	DTL	-55	125		6.0	11	11			.55	23		.45	5.80	F	196 A
NAND/NOR,DUAL 4 INPUT	TI	SN15830		DTL	0	75		5.0	5	8				25		.45	2.60	F	192
NAND/NOR,DUAL 4 INPUT	TI	SN15830N		DTL	0	75		5.0		8				30		.45	2.40	H	192
NAND/NOR,8 INPUT EX	TI	SN14324	A	DTL	0	75		6.0	10		1.00	2.00	.55	32		.45	5.80	F	196A
NAND,DUAL 2 INPUT	PHIL	264D2	A	DTL	-55	125	4.0	-2.0	6	5				30		.40		B,U	198
NAND,DUAL 2 INPUT	FSC	SE115	A	DTL	-55	125		4.0	14		1.10	1.70	.65	15		.45	3.50	B,S	198
NAND,DUAL 2 INPUT	MOTA	MC256	A	DTL	0	70	4.0	-2.0		5				30				13	198
NAND,DUAL 2 INPUT	MOTA	MC206	A	DTL	-55	125	4.0	-2.0		5				30				13,S	198
NAND,DUAL 2 INPUT	SIGN	SE115	A	DTL	-55	125	4.0	-2.0		5	1.22	1.48	1.00	30		.22	3.80	B,S	198
NAND,DUAL 2 INPUT	TRAN	TNG3131	B	TTL	15	55		5.0		7	1.00	2.00	.50	* 25		.50	2.50	47,H	206
NAND,DUAL 2 INPUT	TRAN	TNG5421	B	TTL	-55	125		5.0			1.20	1.70						47,H	206Y
NAND,DUAL 2 INPUT	TRAN	TNG5422	B	TTL	0	75		5.0			1.20	1.70						47,H	206Y
NAND,DUAL 2 INPUT	TRAN	TNG5223	B	TTL	-55	125		5.0		24	1.20	1.70	.70	* 18		.45	2.40	47,H	206
NAND,DUAL 2 INPUT	TRAN	TNG5222	B	TTL	0	75		5.0		40	1.20	1.70	.70	* 18		.45	2.40	23,47	
NAND,DUAL 2 INPUT	TRAN	TNG5221	B	TTL	-55	125		5.0		40	1.20	1.70	.70	* 18		.45	2.40	47,H	206
NAND,DUAL 2 INPUT	TRAN	TNG5224	B	TTL	0	75		5.0		24	1.20	1.70	.70	* 18		.45	2.40	47,H	206
NAND,DUAL 2 INPUT EX	SIGN	CS715	A	DTL	-55	125		4.0		* 15				17		.35	3.80	B	197
NAND,DUAL 2 INPUT EX	SIGN	CS716	A	DTL	-55	125		4.0		* 15				17		.35	3.80	S,B	180
NAND,DUAL 2-3 INPUT	PHIL	264DR	A	DTL	-55	125	4.0	-2.0	20	4				* 45		.40	3.50	B,U	198
NAND,DUAL 2-3 INPUT	FSC	CS700	A	DTL	-55	125		4.0	15		1.10	1.70	.65	15		.45	3.50	B	198A
NAND,DUAL 2-3 INPUT	FSC	CS701	A	DTL	-55	125		4.0	25		1.10	1.70	.65	15		.45	3.50	B,S	198D
NAND,DUAL 2-3 INPUT	MOTA	MC258	A	DTL	0	70	4.0	-2.0		4				30		.55	3.50	13	198D
NAND,DUAL 2-3 INPUT	MOTA	MC257	A	DTL	0	70	4.0	-2.0		6				30				13	198A
NAND,DUAL 2-3 INPUT	MOTA	MC208	A	DTL	-55	125	4.0	-2.0		4				30		.60	3.50	13,S	198D
NAND,DUAL 2-3 INPUT	MOTA	MC207	A	DTL	-55	125	4.0	-2.0		5				30				13,S	198A
NAND,DUAL 2-3 INPUT	SIGN	CS701	A	DTL	-55	125	4.0	-2.0	20	4				• 55		.60	3.50	B,S	198D
NAND,DUAL 2-3 INPUT	SIGN	CS700	A	DTL	-55	125	4.0	-2.0	12	5				• 55		.60		B	198A
NAND,DUAL 2-3INPUT	PHIL	264D5	A	DTL	-55	125	4.0	-2.0	12	5				• 45		.40		B,U	198
NAND,DUAL 2EX-3 INPUT	MOTA	MC944G	A	DTL	-55	125		5.0		27	1.10	2.00		• 42		.40		B	185
NAND,DUAL 2EX-3 INPUT	MOTA	MC830G	A	DTL	0	75		5.0		8	1.10	1.90		• 55		.45		B	192
NAND,DUAL 2EX-3 INPUT	MOTA	MC930G	A	DTL	-55	125		5.0		8	1.10	2.00		• 55		.40		B	192

CIRCUIT DESCRIPTION	MFR	MFRS PART NUMBER	TECH	TYPE OF LOGIC	OPER TEMP CENTGRDE MIN	OPER TEMP CENTGRDE MAX	SUPPLY VOLTAGE VDC NO. 2	SUPPLY VOLTAGE VDC NO. 1	PWR DIS MW	FAN-OUT	INPUT THRESHOLD VOLTS ZERO	INPUT THRESHOLD VOLTS ONE	NOISE IMMUNITY VOLTS	DELAY NANOSECS	OPERATING SPEED MHZ	OUTPUT LEVEL ZERO	OUTPUT LEVEL ONE	PACKAGE TYPE	SCHEMATIC NO.
NAND,DUAL 2EX-3 INPUT	MOTA	MC844G	A	DTL	0	75		5.0		27	1.10	1.90		* 42		.45		B	185
NAND,DUAL 2EX-3 INPUT	MOTA	MC832G	A	DTL	0	75		5.0		25	1.10	1.90		* 60		.45		B	187
NAND,DUAL 2EX-3 INPUT	MOTA	MC932G	A	DTL	-55	125		5.0		25	1.10	2.00		* 60		.40		B	187
NAND,DUAL 3 INPUT	PHIL	264B3	A	DTL	-55	125		4.0		16	.80	2.00	.40	35		.40	3.00	B,U	189
NAND,DUAL 3 INPUT	PHIL	264D3	A	DTL	-55	125		4.0		15	.80	2.00	.40	* 35		.40	3.00	B,U	189
NAND,DUAL 3 INPUT	WMED	WM210	A	DTL	-55	125		6.0	*30	22	1.20	1.80	1.00	45		.20	6.00	21,F,S	179
NAND,DUAL 3 INPUT	WMED	WS817	A	DTL	0	125			7	25								S	179
NAND,DUAL 3 INPUT	GI	PC15	H	DTL	-55	125	D 4.2	-3.0	*60	5				8		.30	5.00	90	201
NAND,DUAL 3 INPUT	MOTA	MC262	A	DTL	0	70		4.0		5				30				13	196A
NAND,DUAL 3 INPUT	MOTA	MC263	A	DTL	0	70		4.0		4				30		.55	3.50	13	196
NAND,DUAL 3 INPUT	MOTA	MC213	A	DTL	-55	125		4.0		4				30		.60	3.50	13,S	196
NAND,DUAL 3 INPUT	MOTA	MC212	A	DTL	-55	125		4.0		5				30				13,S	196A
NAND,DUAL 3 INPUT	RAY	RM201	A	DTL	-55	125		6.0	8	6	1.00	1.80		31		.25		F,S,21	196A
NAND,DUAL 3 INPUT	RAY	RM210	A	DTL	-55	125		6.0	30	20	1.00	1.80	.80	45		.20	5.00	F,S,21	179
NAND,DUAL 3 INPUT	SIGN	SE113	A	DTL	-55	125		4.0		* 15				17		.35	3.80	S,B	180D
NAND,DUAL 3 INPUT	SIGN	SE157	A	DTL	-55	125		4.0		15				17		.40	3.90	B	189
NAND,DUAL 3 INPUT	TI	SN533	F	DTL	-55	125		3.5	18	10	.30	1.70		25		.30	2.20	74	108
NAND,DUAL 3 INPUT	TI	SN472	A	DTL	0	125		4.0	4	5				40				74	
NAND,DUAL 3 INPUT	WMED	WM201	A	DTL	-55	125		6.0	8	6	1.00	1.80		30		.25		21,F,S	196A
NAND,DUAL 3 INPUT	WMED	WS811	A	DTL	0	125		4.0	*10	10	.70	1.75	.25	50		.45	2.50	S	179
NAND,DUAL 3 INPUT	TI	SN7330	F	DTL	0	70		3.0		10	.40	1.70		25		.30	1.70	F,T	194
NAND,DUAL 3 INPUT	WMED	WC201	A	DTL	0	75		6.0	8	6	1.00	1.80		30		.45		21,F	196A
NAND,DUAL 3 INPUT	WMED	WC210	A	DTL	0	75		6.0	33	12	1.00	1.80		45		.45		21,F	179
NAND,DUAL 3 INPUT	PHIL	PL9987	A	TTL	-55	125		3.0	J44	4	.42	.85	.19	50		.23	1.00	51	273
NAND,DUAL 3 INPUT	FSC	LPDT9041	A	DTL	-55	125		5.0		10	.90	1.70	.70	63		.20	2.70	C,H	182
NAND,DUAL 3 INPUT EX	PHIL	264E3	A	DTL	-55	125		4.0		15	.80	2.00	.40	* 35		.40	3.00	G	180
NAND,DUAL 3 INPUT EX	SIGN	SE112	A	DTL	-55	125		4.0		* 15				17		.35	3.80	X	180D
NAND,DUAL 3 INPUT EX	RAY	RM221	A	DTL	-55	125		6.0	8	6	1.00	1.80		31		.25		F,21	196A
NAND,DUAL 3 INPUT EX	WMED	WM221	A	DTL	-55	125		6.0	8	6	1.00	1.80		30		.25		21,F,S	196A
NAND,DUAL 3 INPUT EX	MOTA	MC650	A	DTL	0	75	10.0	- 10.0		* 5	5.00	5.70	3.90	45		.72	9.60	26,C	183
NAND,DUAL 3 INPUT EX	WMED	WC221	A	DTL	0	75		6.0	8	6	1.00	1.80		30		.45		21,F	196A
NAND,DUAL 3 INPUT EX	FSC	LPDT9042	A	DTL	-55	125		5.0		10	.90	1.70	.70	63	2.50	.20	2.70	C,H	182D
NAND,DUAL 4 INP BUFFER	TI	SN54932	B	TTL	-55	125		5.0	10	10	.80	2.00	.40	13		.40	2.40	F	205
NAND,DUAL 4 INP BUFFER	TI	SN74932	F	TTL	0	70		5.0		30	.80	2.00	.40	13		.40	2.40	F	205
NAND,DUAL 4 INPUT	PHIL	264B4	A	DTL	-55	125		4.0		15	.80	2.00	.40	35		.40	3.00	G	189
NAND,DUAL 4 INPUT	TI	SN54930	B	TTL	-55	125		5.0	10	10	.80	2.00	.40	13		.40	2.40	F	195
NAND,DUAL 4 INPUT	TI	SN74930	F	TTL	0	70		5.0	10	10	.80	2.00	.40	13		.40	2.40	F	195
NAND,DUAL 4 INPUT	PHIL	264D4	A	DTL	-55	125		4.0		15	.80	2.00	.40	* 35		.40	3.00	G	180
NAND,DUAL 4 INPUT	SILX	A12	A	DTL	-55	125		5.0	15	* 5	1.70	2.70	.70	12		1.00	4.60	F	202
NAND,DUAL 4 INPUT	FSC	TTL103	A	TTL	-55	125		5.0		10	.70	1.65	.35	25		.35	3.00	C,28	205
NAND,DUAL 4 INPUT	SIGN	SE111	A	DTL	-55	125		4.0		* 15				17		.35	3.80	X	180D
NAND,DUAL 4 INPUT	PHIL	PL103	A	TTL	-55	125		5.0	20	15	.33	.27		* 50				41	205
NAND,DUAL 4 INPUT	RAY	RM211	A	DTL	-55	125		6.0	8	6	1.00	1.80		31		.25		F,21	196A
NAND,DUAL 4 INPUT	SYL	SG41	B	TTL	-55	125		5.0	15	# 7	1.20	1.70	.80	10	20	.40	3.20	G,H	206
NAND,DUAL 4 INPUT	TRAN	TNG3112	B	TTL	0	75		5.0		15	1.20	1.70	.70	* 18		.45	2.40	47,H	206
NAND,DUAL 4 INPUT	TRAN	TNG3114	B	TTL	0	75		5.0		7	1.20	1.70	.70	* 18		.45	2.40	47,H	206
NAND,DUAL 4 INPUT	TRAN	TNG3113	B	TTL	-55	125		5.0		7	1.20	1.70	.70	* 18		.45	2.40	47,H	206
NAND,DUAL 4 INPUT	SYL	SG42	B	TTL	0	75		5.0	15	# 12	1.20	1.80	.80	10	20	.40	3.10	G,H	206

CIRCUIT DESCRIPTION	MFR	MFRS PART NUMBER	T E C H	TYPE OF LOG- IC	OPER TEMP CENTGRDE MIN	MAX	SUPPLY VOLTAGE VDC NO. 2	NO. 1	PWR DIS MW	FAN- OUT	INPUT THRESHOLD VOLTS ZERO	ONE	NOISE IMMU- NITY VOLTS	DELAY NANO- SECS	OPER- ATING SPEED MHZ	OUTPUT LEVEL ZERO	ONE	PACK- AGE TYPE	SCHE- MATIC NO.
NAND, DUAL 4 INPUT	SIGN	SE155	A	DTL	-55	125		4.0		* 15				17		.35	3.90	X	189
NAND, DUAL 4 INPUT	SILX	A02	A	DTL	-55	125		5.0	7	15	1.70	2.70	.70	18		1.00	4.60	20,F	202
NAND, DUAL 4 INPUT	SILX	A05	A	DTL	-55	125		5.0	15	10	1.70	2.70	.70	12		1.00	4.60	20,F	202
NAND, DUAL 4 INPUT	SILX	A07	A	DTL	-55	125		5.0	7	5	1.70	2.70	.70	18		1.00	4.60	20,F	202
NAND, DUAL 4 INPUT	SYL	SG40	B	TTL	-55	125		5.0	15	# 15	1.20	1.70	.80	10	20	.40	3.20	G,H	206
NAND, DUAL 4 INPUT	TRAN	TNG3111	B	TTL	-55	125		5.0		15	1.20	1.70	.70	* 18		.45	2.40	47,H	206
NAND, DUAL 4 INPUT	SYL	SG43	B	TTL	0	75		5.0	15	# 6	1.20	1.80	.80	10	20	.40	3.10	G,H	206
NAND, DUAL 4 INPUT	TI	SN5420	A	TTL	-55	125		5.0	10	* 10	.90	2.20	.40	13		.40	2.60	F	195
NAND, DUAL 4 INPUT	WMED	WM211	A	DTL	-55	125		6.0	8	6	1.00	1.80		30		.25		21,FS	196A
NAND, DUAL 4 INPUT	TI	SN5440	A	TTL	-55	125		5.0	10	* 30	.90	2.20	.40	18		.40	2.60	F	205
NAND, DUAL 4 INPUT	WMED	WM241	A	DTL	-55	125		6.0	10	9	1.00	2.00	.55	32		.45	5.80	21,FS	196A
NAND, DUAL 4 INPUT	WMED	WM701	A	TTL	-55	125		5.0		15	.60	1.65	.25	50		.35	2.65	F,91	205
NAND, DUAL 4 INPUT	TI	SN7420	F	TTL	0	70		5.0		* 10	.80	2.00	.40	13		.40	2.40	F,76	195
NAND, DUAL 4 INPUT	TI	SN7440	F	TTL	0	70		5.0		* 30	.80	2.00	.40	13		.40	2.40	F,76	205
NAND, DUAL 4 INPUT	SIGN	SE455	A	TTL	-55	125		4.0		15	.70	2.10	.40	* 150		.30	2.70	X	184
NAND, DUAL 4 INPUT	MOTA	MC402	F	TTL	-55	125				15	.50	2.40		15					205
NAND, DUAL 4 INPUT	SILX	A20	A	DTL	-55	125		5.0	7		1.70	2.70				1.00		F,20	202
NAND, DUAL 4 INPUT	SW	SWG40	A	TTL	-55	125		5.0	15	15				12	20			19,C	206
NAND, DUAL 4 INPUT	SW	SWG42	A	TTL	0	75		5.0	15	12				12	20			19,C	206
NAND, DUAL 4 INPUT	SW	SWG41	A	TTL	-55	125		5.0	15	7				12	20			19,C	206
NAND, DUAL 4 INPUT	SW	SWG43	A	TTL	0	75		5.0	15	6				12	20			19,C	206
NAND, DUAL 4 INPUT	RAD	RD210	C	DTL	-55	125		5.0		8				7		.40	4.00	F	196A
NAND, DUAL 4 INPUT	SYL	SG242	B	TTL	0	75		5.0	22	9	1.10	1.70	.75	6		.45	3.00	G,H	205
NAND, DUAL 4 INPUT	SYL	SG241	B	TTL	-55	125		5.0	22	8	1.10	1.70	.75	6		.45	3.00	G,H	205
NAND, DUAL 4 INPUT	WMED	WC211	A	DTL	0	75		6.0	8	6	1.00	1.80		30		.45		21,F	196A
NAND, DUAL 4 INPUT	WMED	WC241	A	DTL	0	75		6.0	8	6	1.00	1.80		30		.45		F	196
NAND, DUAL 4 INPUT	SYL	SG133	B	TTL	0	75		5.0	30	12	1.20	1.70	.75	25		.45	3.00	G,H	205
NAND, DUAL 4 INPUT	SYL	SG132	B	TTL	0	75		5.0	30	24	1.20	1.70	.75	25		.45	3.00	G,H	205
NAND, DUAL 4 INPUT	SYL	SG243	B	TTL	0	75		5.0	22	5	1.10	1.70	.75	6		.45	3.00	G,H	205
NAND, DUAL 4 INPUT	SYL	SG240	B	TTL	-55	125		5.0	22	11	1.10	1.70	.75	6		.45	3.00	G,H	205
NAND, DUAL 4 INPUT	SYL	SG130	B	TTL	-55	125		5.0	30	30	1.20	1.70	.75	25		.45	3.00	G,H	205
NAND, DUAL 4 INPUT	SYL	SG131	B	TTL	-55	125		5.0	30	15	1.20	1.70	.75	25		.45	3.00	G,H	205
NAND, DUAL 4 INPUT	TRAN	TNG3141	B	TTL	-55	125		5.0		15	1.20	1.70	.70	* 10		.45	2.40	47,H	206
NAND, DUAL 4 INPUT	TRAN	TNG3144	B	TTL	0	75		5.0		7	1.20	1.70	.70	* 10		.45	2.40	47,H	206
NAND, DUAL 4 INPUT	TRAN	TNG3143	B	TTL	-55	125		5.0		7	1.20	1.70	.70	* 10		.45	2.40	47,H	206
NAND, DUAL 4 INPUT	TRAN	TNG3142	B	TTL	0	75		5.0		15	1.20	1.70	.70	* 10		.45	2.40	47,H	206
NAND, DUAL 4 INPUT	SIGN	SE816	A	TTL	-55	125		5.0		* 10				13		.20	2.40	X	205T
NAND, DUAL 4 INPUT	SIGN	SE855	A	TTL	-55	125		5.0		30				13				X	205
NAND, DUAL 4 INPUT EX	ITT	M1C961	A	DTL	-55	125		5.0	17	7	1.10	1.90	.50	50		.40	3.80	C,B,H	192
NAND, DUAL 4 INPUT EX	ITT	M1C930	A	DTL	-55	125		5.0	17	8	1.10	1.90	.50	80		.40	2.60	C,B,H	192
NAND, DUAL 4 INPUT EX	ITT	M1C932	A	DTL	-55	125		5.0	56	* 25	1.10	1.90	.50	25		.40	2.50	C,B,H	189
NAND, DUAL 4 INPUT EX	ITT	M1C944	A	DTL	-55	125		5.0	44	* 25	1.10	1.90	.50	15		.40	2.50	C,B,H	185
NAND, DUAL 4 INPUT EX	PHIL	264E4	A	DTL	-55	125		4.0		15	.80	2.00	.40	* 35		.40	3.00	G	189
NAND, DUAL 4 INPUT EX	SILX	SI944	A	DTL	-55	125		5.0	38	27	1.10	1.90	.60	32		.40	2.50	F	185
NAND, DUAL 4 INPUT EX	SILX	SI932	A	DTL	-55	125		5.0	25	25	1.10	2.00	.60	35		.40	2.60	F	189
NAND, DUAL 4 INPUT EX	SILX	SI930	A	DTL	-55	125		5.0	8	7	1.10	2.00	.60	20		.40	2.60	F	192
NAND, DUAL 4 INPUT EX	FSC	DTL944	A	DTL	-55	125		5.0		27	1.10	1.90	.60	32		.40	2.50	C	185
NAND, DUAL 4 INPUT EX	FSC	DTL930	A	DTL	-55	125		5.0	8	7	1.10	2.00	.60	20		.40	2.60	C	192

CIRCUIT DESCRIPTION	MFR	MFRS PART NUMBER	T E C H	TYPE OF LOG- IC	OPER TEMP CENTGRDE MIN	MAX	SUPPLY VOLTAGE VDC NO. 2	NO. 1	PWR DIS MW	FAN- OUT	INPUT THRESHOLD VOLTS ZERO	ONE	NOISE IMMU- NITY VOLTS	DELAY NANO- SECS	OPER- ATING SPEED MHZ	OUTPUT LEVEL ZERO	ONE	PACK- AGE TYPE	SCHE- MATIC NO.
NAND,DUAL 4 INPUT EX	FSC	FL93029	A	DTL	0	70		5.0	8	7	1.10	2.00	.60	20		.40	2.60	B,C	192
NAND,DUAL 4 INPUT EX	FSC	FL94429	A	DTL	0	70		5.0		27	1.10	1.90	.60	32		.40	2.50	B,C	185
NAND,DUAL 4 INPUT EX	RAY	RM231	A	DTL	-55	125		6.0	8	6	1.00	1.80		31		.25		F	196A
NAND,DUAL 4 INPUT EX	PHIL	PL930	A	DTL	-55	125		5.0		8	1.10	2.00	.60	20		.40	2.60	41	192
NAND,DUAL 4 INPUT EX	SIGN	SE156	A	DTL	-55	125		4.0		* 15				17		.35	3.90	X	189
NAND,DUAL 4 INPUT EX	WMED	WM231	A	DTL	-55	125		6.0	8	6	1.00	1.80		30		.25		21,FS	196A
NAND,DUAL 4 INPUT EX	WMED	WM261	A	DTL	-55	125		6.0	10	6	1.00	2.00	.55	32		.45	5.80	21,FS	196A
NAND,DUAL 4 INPUT EX	FSC	DTL932	A	DTL	-55	125		5.0	25	25	1.10	2.00	.60	35		.40	2.60	C	189
NAND,DUAL 4 INPUT EX	FSC	FL93229	A	DTL	0	70		5.0	25	25	1.10	2.00	.60	35		.40	2.60	S	189
NAND,DUAL 4 INPUT EX	PHIL	PL932	A	DTL	-55	125		5.0	25	25	1.10	2.00	.60	35		.40	2.60	41	189
NAND,DUAL 4 INPUT EX	PHIL	PL944	A	DTL	-55	125		5.0	50	27	1.10	1.90	.60	32		.40	2.50	41	185
NAND,DUAL 4 INPUT EX	RCA	CD2200	A	DTL	-55	125		4.0	2	* 6		3.50		85		.25	3.23	82	188
NAND,DUAL 4 INPUT EX	PHIL	PL961	A	DTL	-55	125		5.0	27	8	1.10	2.00	.60	* 48		.40	2.60	41	192
NAND,DUAL 4 INPUT EX	SIGN	SE416	A	DTL	-55	125		4.0		5	.70	2.10	.40	* 100		.30	2.70	X	190
NAND,DUAL 4 INPUT EX	SIGN	SE116	A	DTL	-55	125		4.0		* 6	1.20	2.50	.60	* 43		.35	3.10	X	192
NAND,DUAL 4 INPUT EX	SW	SW930	A	DTL	-55	125		5.0	8	9	1.10	2.00	.60	20		.40	2.60	19,C	192
NAND,DUAL 4 INPUT EX	MOTA	MC651	A	DTL	0	75	10.0	- 10.0		* 5	5.00	5.70	3.90	45		.72	9.80	26,C	183
NAND,DUAL 4 INPUT EX	SW	SW932	A	DTL	-55	125		5.0	*13	30	1.10	2.00	.50	25		.40	2.50	19,C	189
NAND,DUAL 4 INPUT EX	RAD	RD309	C	DTL	-55	125		5.0		8				7		.40	2.60	F	186
NAND,DUAL 4 INPUT EX	RAD	RD310	C	DTL	-55	125		5.0		5				7		.40	4.00	F	196A
NAND,DUAL 4 INPUT EX	RAD	RD509	C	DTL	0	75		5.0		12				7		.40	2.60	F	186
NAND,DUAL 4 INPUT EX	RAD	RD510	C	DTL	0	75		5.0		8				7		.40	4.00	F	196A
NAND,DUAL 4 INPUT EX	SW	SW944	A		-55	125		5.0	100	30	1.10	2.00	.60	25		.40	2.60	19,C	185
NAND,DUAL 4 INPUT EX	MOTA	MC932F	A	DTL	-55	125		5.0		25	1.10	2.00		* 60		.40		C	187
NAND,DUAL 4 INPUT EX	MOTA	MC832F	A	DTL	0	75		5.0		25	1.10	1.90		* 60		.45		C	187
NAND,DUAL 4 INPUT EX	MOTA	MC944F	A	DTL	-55	125		5.0		27	1.10	2.00		* 42		.40		C	185
NAND,DUAL 4 INPUT EX	MOTA	MC930F	A	DTL	-55	125		5.0		8	1.10	2.00		* 55		.40		C	192
NAND,DUAL 4 INPUT EX	MOTA	MC844F	A	DTL	0	75		5.0		27	1.10	1.90		* 42		.45		C	185
NAND,DUAL 4 INPUT EX	MOTA	MC830F	A	DTL	0	75		5.0		8	1.10	1.90		* 55		.45		C	192
NAND,DUAL 4 INPUT EX	RAD	RD209	C	DTL	-55	125		5.0		12				7		.40	2.60	F	186
NAND,DUAL 4 INPUT EX	WMED	WC261	A	DTL	0	75		6.0	8	6	1.00	1.80		30		.45		F	196
NAND,DUAL 4 INPUT EX	WMED	WC231	A	DTL	0	75		6.0	8	6	1.00	1.80		30		.45		F	196A
NAND,DUAL 4-INPUT	TI	SN54L20R	B	TTL	-55	125		5.0		10	2.00	.70	.40	33		.30	2.40	F	195
NAND,DUAL 4-INPUT	TI	SN74L20R	A	TTL	0	70		5.0		10	2.00	.70	.40	33		.30	2.40	F	195
NAND,DUAL 4-INPUT	TI	SN54H20	B	TTL	-55	125		5.0	22	10	2.00	.80	.40	6		.40	2.40	F	205
NAND,DUAL 4-INPUT	TI	SN74H20	A	TTL	0	70		5.0	22	10	2.00	.80	.40	6		.40	2.40	F	205
NAND,DUAL 5 INPUT	TI	SN5311	F	DTL	-55	125		3.5	*24	10				25				F	194
NAND,DUAL 5 INPUT	TI	SN7311	F	DTL	0	70		3.0		10	.40	1.70		25		.30	1.70	F,T,76	194
NAND,DUAL 5 INPUT	SIGN	CS730	A	DTL	-55	125		4.0		* 6	1.20	2.50	.60	* 43		.35	3.10	X	192
NAND,DUAL 5 INPUT EX	WMED	WM510	A	DTL	-55	125		4.5	10	27								F	191
NAND,HEX 1 INPUT	ITT	M1C936	A	DTL	-55	125		5.0	*96	* 8	1.10	1.90	.50	25		.40	2.60	C,B,H	192
NAND,HEX 1 INPUT	ITT	M1C937	A	DTL	-55	125		5.0	164	* 7	1.10	1.90	.50	15		.40	3.80	C,B,H	192
NAND,QUAD 2 INPUT	PHIL	2630Q2	A	DTL	-55	125		4.0		8	.80	2.00	.40	30		.40	3.50	B,U	192
NAND,QUAD 2 INPUT	TRAN	TNG3341	B	TTL	-55	125		5.0	22	15			1.00	10	40	.45	3.20	H,47	205
NAND,QUAD 2 INPUT	TRAN	TNG3342	B	TTL	0	75		5.0	22	15			1.00	10	40	.45	3.10	H,47	205
NAND,QUAD 2 INPUT	TRAN	TNG3343	B	TTL	-55	125		5.0	22	7			1.00	10	40	.45	3.20	H,47	205
NAND,QUAD 2 INPUT	TRAN	TNG3344	B	TTL	0	75		5.0	22	7			1.00	10	40	.45	3.10	H,47	205
NAND,QUAD 2 INPUT	TI	SN54946	B	TTL	-55	125		5.0	10	10	.80	2.00	.40	13		.40	2.40	F	195

CIRCUIT DESCRIPTION	MFR	MFRS PART NUMBER	T E C H	TYPE OF LOG- IC	OPER TEMP CENTGRDE MIN	OPER TEMP CENTGRDE MAX	SUPPLY VOLTAGE VDC NO. 2	SUPPLY VOLTAGE VDC NO. 1	PWR DIS MW	FAN- OUT	INPUT THRESHOLD VOLTS ZERO	INPUT THRESHOLD VOLTS ONE	NOISE IMMU- NITY VOLTS	DELAY NANO- SECS	OPER- ATING SPEED MHZ	OUTPUT LEVEL ZERO	OUTPUT LEVEL ONE	PACK- AGE TYPE	SCHE- MATIC NO.
NAND,QUAD 2 INPUT	ITT	M1C946	A	DTL	-55	125		5.0	35	• 8	1.10	1.90	.50	25		.40	2.60	C,B,H	192
NAND,QUAD 2 INPUT	TI	SN74946	F	TTL	0	70		5.0	10	10	.80	2.00	.40	13		.40	2.40	F	195
NAND,QUAD 2 INPUT	ITT	M1C949	A	DTL	-55	125		5.0	35	• 7	1.10	1.90	.50	15		.40	3.80	C,B,H	192
NAND,QUAD 2 INPUT	SILX	SI946	A	DTL	-55	125		5.0	8	8	1.10	2.00	.60	24		.40	2.60	F	192
NAND,QUAD 2 INPUT	FSC	DTL946	A	DTL	-55	125		5.0	8	8	1.10	2.00	.60	24		.40	2.60	C	192
NAND,QUAD 2 INPUT	FSC	FL94629	A	DTL	0	70		5.0	8	8	1.10	2.00	.60	24		.40	2.60	B,C	192
NAND,QUAD 2 INPUT	PHIL	PL946	A	DTL	-55	125		5.0		8	1.10	2.00	.60	20		.40	2.60	41	192
NAND,QUAD 2 INPUT	SYL	SG141	B	TTL	-55	125		5.0	15	7	1.20	1.70	.80	• 37	20	.40	3.20	G,H	206
NAND,QUAD 2 INPUT	SYL	SG143	B	TTL	0	75		5.0	15	6	1.20	1.80	.80	• 36	20	.40	3.10	G,H	206
NAND,QUAD 2 INPUT	SYL	SG142	B	TTL	0	75		5.0	15	12	1.20	1.80	.80	• 34	20	.40	3.10	G,H	206
NAND,QUAD 2 INPUT	SILX	A15	A	DTL	-55	125		5.0	7	* 10	1.70	2.70		18		1.00		F	202
NAND,QUAD 2 INPUT	SYL	SG140	B	TTL	-55	125		5.0	15	15	1.20	1.70	.80	* 34	20	.40	3.20	G,H	206
NAND,QUAD 2 INPUT	SILX	A14	A	DTL	-55	125		5.0	7	* 5	1.70	2.70		18		1.00		F	202
NAND,QUAD 2 INPUT	TI	SN5400	A	TTL	-55	125		5.0	10	* 10	.90	2.20	.40	13		.40	2.60	F	195
NAND,QUAD 2 INPUT	WMED	WM246	A	DTL	-55	125		6.0	8	6	1.00	1.80		19		.25		F	196A
NAND,QUAD 2 INPUT	TI	SN5360	F	DTL	-55	125		3.5	10	* 10	.03	2.10		25		.30	2.20	F	194
NAND,QUAD 2 INPUT	WMED	WM266	A	DTL	-55	125		6.0	10	9	1.00	2.00	.55	32		.45	5.80	F	196A
NAND,QUAD 2 INPUT	TI	SN7400	F	TTL	0	70		5.0		* 10	.80	2.00	.40	13		.40	2.40	F,76	195
NAND,QUAD 2 INPUT	TI	SN7360	F	DTL	0	70		3.0		10	.40	1.70		25		.30	1.70	F,T,76	194
NAND,QUAD 2 INPUT	RCA	CD2201	A	DTL	-55	125		4.0	2	* 6		3.50		85		.25	3.23	82	188
NAND,QUAD 2 INPUT	PHIL	PL949	A	DTL	-55	125		5.0	26	8	1.10	2.00	.60	• 48		.40	2.60	41	155
NAND,QUAD 2 INPUT	SIGN	CS720	A	DTL	-55	125		4.0		* 6	1.20	2.50	.60	• 43		.35	3.10	X	192A
NAND,QUAD 2 INPUT	SIGN	SE480	A	DTL	-55	125		4.0		7	.70	2.10	.40	• 67		.30	2.70	X	184S
NAND,QUAD 2 INPUT	SIGN	SE180	A	DTL	-55	125		4.0		* 6	1.20	2.50	.60	• 43		.35	3.10	X	192
NAND,QUAD 2 INPUT	SW	SW946	A	DTL	-55	125		5.0	8	9	1.10	2.00		20		.40	2.60	27,C	192
NAND,QUAD 2 INPUT	SW	SWG141	A	TTL	-55	125		5.0	15	7				12	20			19,C	193
NAND,QUAD 2 INPUT	SW	SWG142	A	TTL	0	75		5.0	15	12				12	20			19,C	193
NAND,QUAD 2 INPUT	SW	SWG143	A	TTL	0	75		5.0	15	6				12	20			19,C	193
NAND,QUAD 2 INPUT	SW	SWG140	A	TTL	-55	125		5.0	15	15				12	20			19,C	193
NAND,QUAD 2 INPUT	RAD	RD306	C	DTL	-55	125		5.0		5				7		.40	4.00	F	196A
NAND,QUAD 2 INPUT	RAD	RD506	C	DTL	0	75		5.0		8				7		.40	4.00	F	196A
NAND,QUAD 2 INPUT	RAD	RD206	C	DTL	-55	125		5.0		8				7		.40	4.00	F	196A
NAND,QUAD 2 INPUT	MOTA	MC846	A	DTL	0	75		5.0		8	1.10	1.90		* 55		.45		C	192
NAND,QUAD 2 INPUT	MOTA	MC946	A	DTL	-55	125		5.0		8	1.10	2.00		* 55		.40		C	192
NAND,QUAD 2 INPUT	SYL	SG222	B	TTL	0	75		5.0	22	9	1.10	1.70	.65	6		.45	3.00	G,H	205
NAND,QUAD 2 INPUT	SYL	SG220	B	TTL	-55	125		5.0	22	11	1.10	1.70	.65	6		.45	3.00	G,H	205
NAND,QUAD 2 INPUT	SYL	SG223	B	TTL	0	75		5.0	22	5	1.10	1.70	.65	6		.45	3.00	G,H	205
NAND,QUAD 2 INPUT	SYL	SG221	B	TTL	-55	125		5.0	22	6	1.10	1.70	.65	6		.45	3.00	G,H	205
NAND,QUAD 2 INPUT	WMED	WC246	A	DTL	0	75		6.0	8	6	1.00	1.80		30		.45		F	196A
NAND,QUAD 2 INPUT	WMED	WC266	A	DTL	0	75		6.0	8	6	1.00	1.80		30		.45		F	196
NAND,QUAD 2 INPUT	TRAN	TNG3413	B	TTL	-55	125		5.0		7	1.20	1.70	.70	• 18		.45	2.40	47,H	206
NAND,QUAD 2 INPUT	TRAN	TNG3414	B	TTL	0	75		5.0		7	1.20	1.70	.70	• 18		.45	2.40	47,H	206
NAND,QUAD 2 INPUT	TRAN	TNG3412	B	TTL	0	75		5.0		15	1.20	1.70	.70	• 18		.45	2.40	47,H	206
NAND,QUAD 2 INPUT	TRAN	TNG3411	B	TTL	-55	125		5.0		15	1.20	1.70	.70	* 18		.45	2.40	47,H	206
NAND,QUAD 2 INPUT	SIGN	SE870	A	TTL	-55	125		5.0		10				13		.20	2.40	X	205T
NAND,QUAD 2-INPUT	TI	SN74L00R	A	TTL	0	70		5.0		10	2.00	.70	.40	33		.30	2.40	F	195
NAND,QUAD 2-INPUT	TI	SN54L00R	B	TTL	-55	125		5.0		10	2.00	.70	.40	33		.30	2.40	F	195
NAND,QUAD 2-INPUT	TI	SN74H00	A	TTL	0	70		5.0	22	10	2.00	.80	.40	6		.40	2.40	F	205

CIRCUIT DESCRIPTION	MFR	MFRS PART NUMBER	TEC H	TYPE OF LOG- IC	OPER TEMP CENTGRDE MIN	MAX	SUPPLY VOLTAGE VDC NO. 2	NO. 1	PWR DIS MW	FAN- OUT	INPUT THRESHOLD VOLTS ZERO	ONE	NOISE IMMU- NITY VOLTS	DELAY NANO- SECS	OPER- ATING SPEED MHZ	OUTPUT LEVEL ZERO	ONE	PACK- AGE TYPE	SCHE- MATIC NO.
NAND,QUAD 2-INPUT	TI	SN54H00	B	TTL	-55	125		5.0	22	10	2.00	.80	.40	6		.40	2.40	F	205
NAND,TPIPLE 2EX-3-3 INP	WMED	WC206	A	DTL	0	75		6.0	8	6	1.00	1.80		30		.45		F	196A
NAND,TPIPLE 3 INPUT	SYL	SG193	B	TTL	0	75		5.0	15	6	1.20	1.70	.75	10		.45	3.00	G,H	206
NAND,TPIPLE 3 INPUT	SYL	SG191	B	TTL	-55	125		5.0	15	7	1.20	1.70	.75	10		.45	3.00	G,H	206
NAND,TPIPLE 3 INPUT	SYL	SG192	B	TTL	0	75		5.0	15	12	1.20	1.70	.75	10		.45	3.00	G,H	206
NAND,TPIPLE 3 INPUT	SYL	SG190	B	TTL	-55	125		5.0	15	15	1.20	1.70	.75	10		.45	3.00	G,H	206
NAND,TRIPLE 1-2-2 INPUT	SW	SW962Z	A		-55	125		5.0	8	9	1.10	2.00				.40	2.60	19,C	192
NAND,TRIPLE 2 INPUT	SYL	SG163	B	TTL	0	75		5.0	15	6	1.20	1.70	.75	15		.45	3.00	G,H	271
NAND,TRIPLE 2 INPUT	SYL	SG162	B	TTL	0	75		5.0	15	12	1.20	1.70	.75	15		.45	3.00	G,H	271
NAND,TRIPLE 2 INPUT	SYL	SG161	B	TTL	-55	125		5.0	15	7	1.20	1.70	.75	15		.45	3.00	G,H	271
NAND,TRIPLE 2 INPUT	SYL	SG160	B	TTL	-55	125		5.0	15	15	1.20	1.70	.75	15		.45	3.00	G,H	271
NAND,TRIPLE 2 INPUT EX	SIGN	CS727	A	DTL	-55	125		4.0		• 6	1.20	2.50	.60	• 43		.35	3.10	X	192
NAND,TRIPLE 2EX-3-3 INP	RAY	RM206	A	DTL	-55	125		6.0	22	6	1.00	1.80		30		.25		F	196A
NAND,TRIPLE 2EX-3-3 INP	WMED	WM206	A	DTL	-55	125		6.0	7	6	1.00	1.80		30		.25		F	196A
NAND,TRIPLE 2EX-3-3 INP	WMED	WM226	A	DTL	-55	125		6.0	11	6	1.00	2.00	.55	23		.45	5.80	F	196
NAND,TRIPLE 2EX-3-3 INP	WMED	WC226	A	DTL	0	75		6.0	8	6	1.00	1.80		30		.45		F	196
NAND,TRIPLE 3 INPUT	TRAN	TNG3341	B	TTL	-55	125		5.0	22	15			1.00	10	40	.45	3.20	H,47	205
NAND,TRIPLE 3 INPUT	TRAN	TNG3342	B	TTL	0	75		5.0	22	15			1.00	10	40	.45	3.10	H,47	205
NAND,TRIPLE 3 INPUT	TRAN	TNG3343	B	TTL	-55	125		5.0	22	7			1.00	10	40	.45	3.20	H,47	205
NAND,TRIPLE 3 INPUT	TRAN	TNG3344	B	TTL	0	75		5.0	22	7			1.00	10	40	.45	3.10	H,47	205
NAND,TRIPLE 3 INPUT	TI	SN74962	F	TTL	0	70		5.0	10	10	.80	2.00	.40	13		.40	2.40	F	195
NAND,TRIPLE 3 INPUT	PHIL	264G9	A	DTL	-55	125		4.0		8	.80	2.00	.40	• 30		.40	3.50	G	192
NAND,TRIPLE 3 INPUT	SILX	SI962	A	DTL	-55	125		5.0	8	8				24				F	192
NAND,TRIPLE 3 INPUT	ITT	M1C962	A	DTL	-55	125		5.0	26	• 8	1.10	2.00	.50	15		.40	2.50	C,B,H	192
NAND,TRIPLE 3 INPUT	ITT	M1C963	A	DTL	-55	125		5.0	26	• 7	1.10	2.00	.50	10		.40	3.80	C,B,H	192
NAND,TRIPLE 3 INPUT	FSC	FL96229	A	DTL	0	70		5.0	8	8				24				C	192
NAND,TRIPLE 3 INPUT	FSC	DTL962	A	DTL	-55	125		5.0	8	8				24				C	192
NAND,TRIPLE 3 INPUT	RAY	RM216	A	DTL	-55	125		6.0	22	6	1.00	1.80		30		.25		F	196
NAND,TRIPLE 3 INPUT	TI	SN5410	A	TTL	-55	125		5.0	10	• 10	.90	2.20	.40	13		.40	2.60	F	195
NAND,TRIPLE 3 INPUT	WMED	WM506	A	DTL	-55	125		4.5	19	10								F	196
NAND,TRIPLE 3 INPUT	WMED	WM216	A	DTL	-55	125		6.0	7	6	1.00	1.80		30		.25		F	196A
NAND,TRIPLE 3 INPUT	WMED	WM236	A	DTL	-55	125		6.0	11	6	1.00	2.00	.55	23		.45	5.80	F	196A
NAND,TRIPLE 3 INPUT	WMED	WM556	A	DTL	-55	125		4.5	10	12								F	196
NAND,TRIPLE 3 INPUT	TI	SN5331	F	DTL	-55	125		3.5	10	• 10	.30	2.10		25		.30	2.20	F	194
NAND,TRIPLE 3 INPUT	TI	SN7331	F	DTL	0	70		3.0		10	.40	1.70		25		.30	1.70	F,76	194
NAND,TRIPLE 3 INPUT	TI	SN7410	F	TTL	0	70		5.0		• 10	.80	2.00	.40	13		.40	2.40	F,76	195
NAND,TRIPLE 3 INPUT	SIGN	CS721	A	DTL	-55	125		4.0		• 6	1.20	2.50	.60	• 43		.35	3.10	X	192A
NAND,TRIPLE 3 INPUT	PHIL	PL962	A	DTL	-55	125		5.0	17		1.10	2.00	.60	• 55		.40	2.60	41	
NAND,TRIPLE 3 INPUT	SIGN	SE170	A	DTL	-55	125		4.0		• 6	1.20	2.50	.60	• 43		.35	3.10	X	192
NAND,TRIPLE 3 INPUT	PHIL	PL963	A	DTL	-55	125		5.0	26		1.10	2.00	.60	• 48		.40	2.60	41	
NAND,TRIPLE 3 INPUT	RAD	RD505	C	DTL	0	75		5.0		8				7		.40	4.00	F	196A
NAND,TRIPLE 3 INPUT	RAD	RD305	C	DTL	-55	125		5.0		5				7		.40	4.00	F	196A
NAND,TRIPLE 3 INPUT	RAD	RD205	C	DTL	-55	125		5.0		8				7		.40	4.00	F	196A
NAND,TRIPLE 3 INPUT	SW	SW962Y	A		-55	125		5.0	8	9	1.10	2.00				.40	2.60	19,C	192
NAND,TRIPLE 3 INPUT	MOTA	MC862	A	DTL	0	75		5.0		8	1.10	1.90		• 55		.45		C	192
NAND,TRIPLE 3 INPUT	MOTA	MC962	A	DTL	-55	125		5.0		8	1.10	2.00		• 55		.40		C	192
NAND,TRIPLE 3 INPUT	WMED	WC216	A	DTL	0	75		6.0	8	6	1.00	1.80		30		.45		F	196A
NAND,TRIPLE 3 INPUT	WMED	WC236	A	DTL	0	75		6.0	8	6	1.00	1.80		30		.45		F	196

CIRCUIT DESCRIPTION	MFR	MFRS PART NUMBER	T E C H	TYPE OF LOG- IC	OPER TEMP CENT GRDE MIN	OPER TEMP CENT GRDE MAX	SUPPLY VOLTAGE VDC NO. 2	SUPPLY VOLTAGE VDC NO. 1	PWR DIS MW	FAN- OUT	INPUT THRESHOLD VOLTS ZERO	INPUT THRESHOLD VOLTS ONE	NOISE IMMU- NITY VOLTS	DELAY NANO- SECS	OPER- ATING SPEED MHZ	OUTPUT LEVEL ZERO	OUTPUT LEVEL ONE	PACK- AGE TYPE	SCHE- MATIC NO.
NAND,TRIPLE 3 INPUT	TRAN	TNG3311	B	TTL	-55	125		5.0		15	1.20	1.70	.70	* 18		.45	2.40	47,H	206
NAND,TRIPLE 3 INPUT	TRAN	TNG3314	B	TTL	0	75		5.0		7	1.20	1.70	.70	* 18		.45	2.40	47	
NAND,TRIPLE 3 INPUT	TRAN	TNG3313	B	TTL	-55	125		5.0		7	1.20	1.70	.70	* 18		.45	2.40	47,H	206
NAND,TRIPLE 3 INPUT	TRAN	TNG3312	B	TTL	0	75		5.0		15	1.20	1.70	.70	* 18		.45	2.40	47,H	206
NAND,TRIPLE 3 INPUT	SIGN	SE880	A	TTL	-55	125		5.0		10				13		.20	2.40	X	205T
NAND,2 INPUT	PHIL	264L	A	DTL	-55	125	4.0	-2.0		20				40		.40	2.00	B,U	197
NAND,2 INPUT	SIGN	SE150	A	DTL	-55	125	4.0	-2.0		* 20				60		.60	2.00	B,S	197
NAND,2 INPUT	MOTA	MC205	A	DTL	-55	125	4.5	-2.0	32	* 20				50		.60	2.00	13,S	197
NAND,2 INPUT	FSC	SE150	A	DTL	-55	125		4.0						27		.45	2.00	B,S	197
NAND,2 INPUT	MOTA	MC255	A	DTL	0	70	4.5	-2.0	32	* 20				50		.50	2.00	13	197
NAND,2 INPUT	SW	SWG133	A	TTL	0	75		5.0	30	6				12	20			19,C	206
NAND,2 INPUT	SW	SWG131	A	TTL	-55	125		5.0	30	7				12	20			19,C	206
NAND,2 INPUT	SW	SWG130	A	TTL	-55	125		5.0	30	15				12	20			19,C	206
NAND,2 INPUT	SW	SWG132	A	TTL	0	75		5.0	30	12				12	20			19,C	206
NAND,3 INPUT EXPANDABLE	PHIL	254G3	A	DTL	-55	125	4.0	-2.0		5				30		.40		B,U	199
NAND,3 INPUT EXPANDABLE	FSC	SE110	A	DTL	-55	125		4.0						20				B,S	200
NAND,3 INPUT EXPANDABLE	FSC	SE102	A	DTL	-55	125		4.0	* 7		1.10	1.70	.65	15		.45	3.50	B,S	198
NAND,3 INPUT EXPANDABLE	MOTA	MC204	A	DTL	-55	125	4.0	-2.0		20				40				13,S	200
NAND,3 INPUT EXPANDABLE	MOTA	MC202	A	DTL	-55	125	4.0	-2.0		5				30		.60		13,C	198
NAND,3 INPUT EXPANDABLE	MOTA	MC254	A	DTL	0	70	4.0	-2.0		20				40				13	200
NAND,3 INPUT EXPANDABLE	MOTA	MC252	A	DTL	0	70	4.0	-2.0		5				30				13	198
NAND,3 INPUT EXPANDABLE	SIGN	SE110	A	DTL	-55	125	4.0	-2.0		* 20	1.20	1.60		40		.30		B,S	200
NAND,3 INPUT EXPANDABLE	SIGN	SE102	A	DTL	-55	125	4.0	-2.0		5				30		.20		B,S	198
NAND,3 INPUT EXPANDABLE	TRAN	TNG4131	B	TTL	15	55		5.0		7	1.00	2.00	.50	* 25		.50	2.50	47,H	206
NAND,3 INPUTEXPANDABLE	PHIL	264P	A	DTL	-55	125	4.0	-2.0	30	20				40		.50		B,U	200
NAND,4 INPUT	TI	SN359	F		0	65	6.0	-3.0	22	6				140		.70		F	204
NAND,4 INPUT	TRAN	TNG3031	B	TTL	15	55		5.0		7	1.00	2.00	.50	* 25		.50	2.50	47,H	206
NAND,4 INPUT	TRAN	TNG5322	B	TTL	0	75		5.0			1.20	1.70						23,47	
NAND,4 INPUT	TRAN	TNG3331	B	TTL	15	55		5.0		20	1.00	2.00	.50	* 25		.50	2.50	47,H	206
NAND,4 INPUT	TRAN	TNG3431	B	TTL	15	55		5.0			1.00	2.00	.40			.60		47,H	206Y
NAND,4 INPUT	TRAN	TNG5321	B	TTL	-55	125		5.0			1.20	1.70						23,47	
NAND,4 INPUT	TRAN	TNG5124	B	TTL	0	75		5.0		24	1.20	1.70	.70	* 18		.45	2.40	47,H	206
NAND,4 INPUT	TRAN	TNG5121	B	TTL	-55	125		5.0		40	1.20	1.70	.70	* 18		.45	2.40	47,H	206
NAND,4 INPUT	TRAN	TNG5123	B	TTL	-55	125		5.0		24	1.20	1.70	.70	* 18		.45	2.40	47,H	206
NAND,4 INPUT	TRAN	TNG5122	B	TTL	0	75		5.0		40	1.20	1.70	.70	* 18		.45	2.40	47,H	206
NAND,4 INPUT CLOCKED	TI	SN347	F		0	65	6.0	-3.0	22	6				140		.70		F	204
NAND,4 INPUT EXPANDABLE	PHIL	254G4	A	DTL	-55	125	4.0	-2.0						30		.40		B,U	199
NAND,4 INPUT EXPANDABLE	SILX	A13	A	DTL	-55	125		5.0	15	* 5	1.70	2.70	.70	12		1.00	4.60	F	202
NAND,4 INPUT EXPANDABLE	SILX	A10	A	DTL	-55	125		5.0	15	* 10	1.70	2.70	.70	12		1.00	4.60	7,F	202
NAND,4 INPUT EXPANDABLE	GI	NC11	H	DTL	-55	125	D 4.2	-3.0	*60	5				8	15	.30	5.00	0	201
NAND,4 INPUT EXPANDABLE	GESP	12X101	G	DTL	-55	125	4.0	-2.0	6	5				25				15	198
NAND,4 INPUT EXPANDABLE	MOTA	MC201	A	DTL	-55	125	4.0	-2.0		5				30		.60		13,C	198
NAND,4 INPUT EXPANDABLE	FSC	SE101	A	DTL	-55	125		4.0	* 7		1.10	1.70	.65	15		.45	3.50	B,S	198
NAND,4 INPUT EXPANDABLE	MOTA	MC251	A	DTL	0	70	4.0	-2.0		5				30				13	198
NAND,4 INPUT EXPANDABLE	RAY	RM204	A	DTL	-55	125		6.0	15	8	1.00	1.80		30		.25		5S,21	196A
NAND,4 INPUT EXPANDABLE	SIGN	SE101	A	DTL	-55	125	4.0	-2.0		5				30		.20		B,S	198
NAND,4 INPUT EXPANDABLE	SILX	A01	A	DTL	-55	125		5.0	7	15	1.70	2.70	.70	18		1.00	4.60	7,F	202
NAND,4 INPUT EXPANDABLE	SILX	A06	A	DTL	-55	125		5.0	7	5	1.70	2.70	.70	18		1.00	4.60	7,F	202

CIRCUIT DESCRIPTION	MFR	MFRS PART NUMBER	TEC H	TYPE OF LOG-IC	OPER TEMP CENTGRDE MIN	OPER TEMP CENTGRDE MAX	SUPPLY VOLTAGE VDC NO. 2	SUPPLY VOLTAGE VDC NO. 1	PWR DIS MW	FAN-OUT	INPUT THRESHOLD VOLTS ZERO	INPUT THRESHOLD VOLTS ONE	NOISE IMMU-NITY VOLTS	DELAY NANO-SECS	OPER-ATING SPEED MHZ	OUTPUT LEVEL ZERO	OUTPUT LEVEL ONE	PACK-AGE TYPE	SCHE-MATIC NO.
NAND,4 INPUT EXPANDABLE	WMED	WM204	A	DTL	-55	125		6.0	8	6	1.00	1.80		28		.25		21,FS	196A
NAND,4 INPUT EXPANDABLE	WMED	WC204	A	DTL	0	75		6.0	8	6	1.00	1.80		30		.45		9,F	196A
NAND,5 INPUT EXPANDABLE	VARO	8214	E	DTL	-55	125	C 3.0	-3.0	108	4	.50	3.00		10		.50	3.50	72	203
NAND,5 INPUT EXPANDABLE	TI	SN7310	F	DTL	0	70		3.0		10	.40	1.70		30		.30	1.70	76	194
NAND,6 INPUT EXPANDABLE	GI	PC11	H	DTL	-55	125	D 4.2	-3.0	*60	5				8		.30	5.00	90	201
NAND,6 INPUT EXPANDABLE	RAY	RM214	A	DTL	-55	125		6.0	15	6	1.00	1.80		30		.25		FS,21	196A
NAND,6 INPUT EXPANDABLE	WMED	WM214	A	DTL	-55	125		6.0	8	6	1.00	1.80		35		.25		21,FS	196A
NAND,6 INPUT EXPANDABLE	WMED	WC214	A	DTL	0	75		6.0	8	6	1.00	1.80		30		.45		21,F	196A
NAND,7 INPUT CLOCKED	TI	SN341	F		0	65	6.0	-3.0	12	6				140		.70		F	204
NAND,8 INPUT	TI	SN5430	A	TTL	-55	125		5.0	10	10	.80	2.00	.40	13		.40	2.40	F	195
NAND,8 INPUT	TI	SN74965	F	TTL	0	70		5.0	10	10	.80	2.00	.40	13		.40	2.40	F	195
NAND,8 INPUT	FSC	TTL104	A	TTL	-55	125		5.0		10	.70	1.65	.35	25		.35	3.00	C,28	205
NAND,8 INPUT	PHIL	PLI04	A	TTL	-55	125		5.0	20	15	.33	.27		* 50				41	205
NAND,8 INPUT	TRAN	TNG3013	B	TTL	-55	125		5.0		7	1.20	1.70	.70	* 18		.45	2.40	47,H	206
NAND,8 INPUT	TRAN	TNG3011	B	TTL	-55	125		5.0		15	1.20	1.70	.70	* 18		.45	2.40	47,H	206
NAND,8 INPUT	TRAN	TNG3014	B	TTL	0	75		5.0		7	1.20	1.70	.70	* 18		.45	2.40	47,H	206
NAND,8 INPUT	SYL	SG61	B	TTL	-55	125		5.0	15	# 7	1.20	1.70	.80	12	20	.40	3.20	G,H	206
NAND,8 INPUT	SYL	SG60	B	TTL	-55	125		5.0	15	# 15	1.20	1.70	.80	12	20	.40	3.20	G,H	206
NAND,8 INPUT	TRAN	TNG3012	B	TTL	0	75		5.0		15	1.20	1.70	.70	* 18		.45	2.40	47,H	206
NAND,8 INPUT	SYL	SG62	B	TTL	0	75		5.0	15	# 12	1.20	1.80	.80	39	20	.40	3.10	G,H	206
NAND,8 INPUT	TI	SN5430	A	TTL	-55	125		5.0	10	* 10	.90	2.20	.40	15		.40	2.60	F	195
NAND,8 INPUT	WMED	WM704	A	TTL	-55	125		5.0		15	.60	1.65	.25	50		.35	2.65	F,91	205
NAND,8 INPUT	TI	SN7430	F	TTL	0	70		5.0		* 10	.80	2.00	.40	13		.40	2.40	F,76	195
NAND,8 INPUT	MOTA	MC401	F	TTL	-55	125				15	.50	2.40		15					205
NAND,8 INPUT	SW	SWG61	A	TTL	-55	125		5.0	15	7				15	20			19,C	206
NAND,8 INPUT	SW	SWG63	A	TTL	0	75		5.0	15	6				15	20			19,C	206
NAND,8 INPUT	SW	SWG62	A	TTL	0	75		5.0	15	12				15	20			19,C	206
NAND,8 INPUT	SYL	SG63	B	TTL	0	75		5.0	7	# 6	1.20	1.80	.80	40	20	.40	3.10	G,H	206
NAND,8 INPUT	SW	SWG60	A	TTL	-55	125		5.0	15	15				15	20			19,C	206
NAND,8 INPUT	SYL	SG262	B	TTL	0	75		5.0	22	9	1.10	1.70	.75	8		.45	3.00	G,H	205
NAND,8 INPUT	SYL	SG263	B	TTL	0	75		5.0	22	5	1.10	1.70	.75	8		.45	3.00	G,H	205
NAND,8 INPUT	SYL	SG260	B	TTL	-55	125		5.0	22	11	1.10	1.70	.75	8		.45	3.00	G,H	205
NAND,8 INPUT	SYL	SG261	B	TTL	-55	125		5.0	22	6	1.10	1.70	.75	8		.45	3.00	G,H	205
NAND,8 INPUT	TRAN	TNG3041	B	TTL	-55	125		5.0		15	1.20	1.70	.70	* 10		.45	2.40	47,H	206
NAND,8 INPUT	TRAN	TNG3044	B	TTL	0	75		5.0		7	1.20	1.70	.70	* 10		.45	2.40	47,H	206
NAND,8 INPUT	TRAN	TNG3042	B	TTL	0	75		5.0		15	1.20	1.70	.70	* 10		.45	2.40	47,H	206
NAND,8 INPUT	TRAN	TNG3043	B	TTL	-55	125		5.0		7	1.20	1.70	.70	* 10		.45	2.40	47,H	206
NAND,8 INPUT	SIGN	SE808	A	TTL	-55	125		5.0		* 10				13		.20	2.40	X	205T
NAND,8 INPUT EXPANDABLE	SYL	SG121	B	TTL	-55	125		5.0	15	# 7	1.20	1.70	.80	18	20	.40	3.20	G,H	206
NAND,8 INPUT EXPANDABLE	RAY	RM224	A	DTL	-55	125		6.0	15	6	1.00	1.80		30		.25		F,21	196A
NAND,8 INPUT EXPANDABLE	SYL	SG120	B	TTL	-55	125		5.0	15	# 15	1.20	1.70	.80	18	20	.40	3.20	G,H	206
NAND,8 INPUT EXPANDABLE	SYL	SG123	B	TTL	0	75		5.0	15	# 6	1.20	1.80	.80	18	20	.40	3.10	G,H	206
NAND,8 INPUT EXPANDABLE	SYL	SG122	B	TTL	0	75		5.0	15	# 12	1.20	1.80	.80	18	20	.40	3.10	G,H	206
NAND,8 INPUT EXPANDABLE	WMED	WM224	A	DTL	-55	125		6.0	7	6	1.00	1.80		35		.25		21,FS	196A
NAND,8 INPUT EXPANDABLE	WMED	WM234	A	DTL	-55	125		6.0	15	9	1.00	2.00	.55	19		.45	5.80	F	196A
NAND,8 INPUT EXPANDABLE	SW	SWG122	A	TTL	0	75		5.0	15	12				16	20			19,C	206
NAND,8 INPUT EXPANDABLE	SW	SWG120	A	TTL	-55	125		5.0	15	15				16	20			19,C	206
NAND,8 INPUT EXPANDABLE	SW	SWG123	A	TTL	0	75		5.0	15	6				16	20			19,C	206

CIRCUIT DESCRIPTION	MFR	MFRS PART NUMBER	T E C H	TYPE OF LOG- IC	OPER TEMP CENTGRDE MIN	MAX	SUPPLY VOLTAGE VDC NO. 2	NO. 1	PWR DIS MW	FAN- OUT	INPUT THRESHOLD VOLTS ZERO	ONE	NOISE IMMU- NITY VOLTS	DELAY NAND- SECS	OPER- ATING SPEED MHZ	OUTPUT LEVEL ZERO	ONE	PACK- AGE TYPE	SCHE- MATIC NO.
NAND,8 INPUT EXPANDABLE	SW	SWG121	A	TTL	-55	125		5.0	15	7				16	20			19,C	206
NAND,8 INPUT EXPANDABLE	WMED	WC224	A	DTL	0	75		6.0	8	6	1.00	1.80		30		.45		21,F	196A
NAND,8 INPUT EXPANDABLE	TRAN	TNG3051	B	TTL	-55	125		5.0		15	1.20	1.70	.70	* 18		.45	2.40	47,H	206
NAND,8 INPUT EXPANDABLE	TRAN	TNG3054	B	TTL	0	75		5.0		7	1.20	1.70	.70	* 18		.45	2.40	47,H	206
NAND,8 INPUT EXPANDABLE	TRAN	TNG3052	B	TTL	0	75		5.0		15	1.20	1.70	.70	* 18		.45	2.40	47,H	206
NAND,8 INPUT EXPANDABLE	TRAN	TNG3053	B	TTL	-55	125		5.0		7	1.20	1.70	.70	* 18		.45	2.40	47,H	206
NOR/NAND/AND,5 INPUT EX	TI	SN531	F	DTL	-55	125		3.5	18	* 10	.30	1.70		25		.30	2.20	74	105
NOR/OR, 4 INPUT	PHIL	I34G	A	RTL	-55	125		3.0	4	* 26	.55	.75	.05	70		.50	.83	B,U	213
NOR/OR,DUAL 4 INPUT	RCA	CD2100	A	ECL	-55	125		-5.2	44	* 12	1.30	.95	.10	24		1.50	.85	82	209
NOR/OR,DUAL 4 INPUT	RCA	CD2151	A	ECL	10	60		-5.0	88	* 12	1.40	1.00	.15	7		1.60	.85	82	210
NOR/OR,DUAL 4 INPUT	RCA	CD2150	A	ECL	10	60		-5.0	110	* 12	1.40	1.00	.15	7		1.60	.85	82	210
NOR/OR,DUAL 4 INPUT	WMED	WS371	A	ECL	10	60		-5.0	115	* 15	1.6T	.8T		10		1.6T	.8T	S	210
NOR/OR,3 INPUT EX	MOTA	MC307	A	ECL	-55	125	- 1.15	-5.2	35	* 26	1.30	1.00		6		1.66		10,S	211L
NOR/OR,3 INPUT EX	MOTA	MC306	A	ECL	-55	125	- 1.15	-5.2	35	* 26	1.30	1.00	.30	6		1.66	.70	10,S	211
NOR/OR,3 INPUT EX	MOTA	MC357	A	ECL	0	75	- 1.15	-5.2	35	* 26				6		1.66	.70	13,C	211L
NOR/OR,3 INPUT EX	MOTA	MC356	A	ECL	0	75	- 1.15	-5.2	35	* 26				6		1.66	.70	13,C	211
NOR/OR,3 INPUT EX	SW	SW306	A	ECL	-55	125	- 1.15	-5.2	35	26	1.30	1.00	.30	6		1.66	.70	19,S	211
NOR/OR,3 INPUT EX	SW	SW307	A	ECL	-55	125	- 1.15	-5.2	35	26	1.30	1.00		6		1.66		19,S	211
NOR/OR,4 INPUT	FSC	MWL911	A	RTL	-55	125		3.0	4	4,3	.45	.75	.05	80		.30	.80	A	213
NOR/OR,4 INPUT	FSC	FL91129	A	RTL	15	55		3.6	6	4				25				A	213
NOR/OR,4 INPUT	NSC	NC2011	A	RTL	0	100		3.0	4	4,3	.69		.54	12		.15		2	213
NOR/OR,4 INPUT	NSC	NC1011	A	RTL	-55	125		3.0	4	4,3	.69		.54	12		.15		2	213
NOR/OR,4 INPUT	MOTA	MC911	A	RTL	-55	125		3.0	4	4	.45	.75	.05	80		.30	.80	A	213
NOR/OR,4 INPUT	PHIL	PL980	A	RTL	-55	125		4.0	3	5	.45	.82		25		.40		41,51	213
NOR/OR,4 INPUT	PHIL	PL911	A	RTL	-55	125		3.0	4	4,3	.45	.75	.05	* 80		.30	.80	A,51	213
NOR/OR,4 INPUT	SPRG	US-0711	F	RTL	-55	125		3.0	4					* 80				57,62	
NOR/OR,4 INPUT	FSC	L924	A	RTL	15	55		3.6						* 30				A	212
NOR/OR,5 INPUT	MOTA	MC301	A	ECL	-55	125	- 1.15	-5.2	35	* 26	1.30	1.80	.30	6		1.66	.70	10,S	211
NOR/OR,5 INPUT	MOTA	MC351	F	ECL	0	75	- 1.15	-5.2	*50	* 25	1.35	.95	.10			1.45	.80		211
NOR/OR,5 INPUT	SW	SW301	A	ECL	-55	125	- 1.15	-5.2	35	* 25	1.30	1.00	.30	6		1.66	.70	19,S	211
NOR/OR,8 INPUT	RCA	CD2152	A	ECL	10	60		-5.0	147	* 12	1.40	1.00	.15	7		1.60	.85	82	214
NOR/OR,8 INPUT	WMED	WS374	A	ECL	10	60		-5.0	115	* 15	1.6T	.8T		10		1.6T	.8T	S	210
NOR/OR,9 INPUT	VARO	8204	E	DTL	-55	125	C 3.0	-3.0	150	4	.50	3.50		* 20		.50	3.50	72	215
NOR,DUAL 2 INPUT	PHIL	134D2	A	RTL	-55	125		3.0	4	4	.55	.75	.05	40		.50	.83	A,U	140
NOR,DUAL 2 INPUT	TI	SN17910L		TTL	-55	125		3.0	5	4				40				1	
NOR,DUAL 2 INPUT	AMEL	124A	F	RTL	-55	125		3.0	18	* 10			.30	12		.25	.81	B,C	140
NOR,DUAL 2 INPUT	AMEL	124C	F	RTL	0	70		3.0	18	* 5			.25	16		.25	.81	B	140
NOR,DUAL 2 INPUT	AMEL	124B	F	RTL	-55	125		3.0	18	* 6			.26	12		.25	.81	B,C	140
NOR,DUAL 2 INPUT	FSC	L914C	A	RTL	0	100		3.0		5	.55	.84	.15	12		.40	1.45	A,D	140
NOR,DUAL 2 INPUT	FSC	L914	A	RTL	-55	125		3.0		5	.56	.82	.26	12		.30	1.45	A,D	140
NOR,DUAL 2 INPUT	FSC	MWL910	A	RTL	-55	125		3.0	2	4	.45	.75	.05	45		.30	.80	A	140
NOR,DUAL 2 INPUT	FSC	FL91429	A	RTL	15	55		3.6	40	16				10				A	140
NOR,DUAL 2 INPUT	FSC	FL91029	A	RTL	15	55		3.6	6	4				25				A	140
NOR,DUAL 2 INPUT	NSC	NB2014	A	RTL	0	100		3.0	*54	13	.69		.54	12		.15		2	140
NOR,DUAL 2 INPUT	PHIL	PL910	A	RTL	-55	125		3.0	4	4	.45	.75	.05	40		.30	.80	A,51	140
NOR,DUAL 2 INPUT	MOTA	MC309	A	ECL	-55	125	- 1.15	-5.2	49	* 26				6		1.66	.70	10,S	216
NOR,DUAL 2 INPUT	MOTA	MC361	A	ECL	0	75	- 1.15	-5.2	49	* 26				6		1.66		10,C	216N
NOR,DUAL 2 INPUT	MOTA	MC311	A	ECL	-55	125	- 1.15	-5.2	49	* 26				6		1.66		10,S	216N

CIRCUIT DESCRIPTION	MFR	MFRS PART NUMBER	T EC H	TYPE OF LOG- IC	OPER TEMP CENTGRDE MIN	MAX	SUPPLY VOLTAGE VDC NO. 2	NO. 1	PWR DIS MW	FAN- OUT	INPUT THRESHOLD VOLTS ZERO	ONE	NOISE IMMU- NITY VOLTS	DELAY NANO- SECS	OPER- ATING SPEED MHZ	OUTPUT LEVEL ZERO	ONE	PACK- AGE TYPE	SCHE- MATIC NO.
NOR,DUAL 2 INPUT	NSC	NC2010	A	RTL	0	100		3.0	4	13	.89		.54	12		.15		2	140
NOR,DUAL 2 INPUT	NSC	NB1014	A	RTL	-55	125		3.0	*54	13	.69		.54	12		.15		2	140
NOR,DUAL 2 INPUT	MOTA	MC360	A	ECL	0	75	- 1.15	-5.2	49	* 26				6		1.66	.70	10,C	216M
NOR,DUAL 2 INPUT	NSC	NC1010	A	RTL	-55	125		3.0	4	13	.89		.54	12		.15		2	140
NOR,DUAL 2 INPUT	MOTA	MC359	A	ECL	0	75	- 1.15	-5.2	49	* 26				6		1.66	.70	10,C	216
NOR,DUAL 2 INPUT	MOTA	MC910	A	RTL	-55	125		3.0	4	4	.45	.75	.05	45		.30	.80	A	140
NOR,DUAL 2 INPUT	MOTA	MC310	A	ECL	-55	125	- 1.15	-5.2	49	* 26				6		1.66	.70	10,S	216M
NOR,DUAL 2 INPUT	PHIL	PL914	A	RTL	-55	125		3.0		5	.56	.82		12		.30		A,69	140
NOR,DUAL 2 INPUT	PHIL	PL977	A	RTL	-55	125		4.0	3	5	.45	.82		11		.40		41,51	140
NOR,DUAL 2 INPUT	SPRG	US-0106	F	RCTL	-55	125		3.0		25,5								57,62	
NOR,DUAL 2 INPUT	TI	SN731	A	RTL	-55	125		3.0	2	4				35				A,T	140
NOR,DUAL 2 INPUT	FSC	CTL952	A	RTL	15	55	4.5	-2.0	55	* 12	.85	1.15	.25	12	30	.60	2.30	H	
NOR,DUAL 2 INPUT	MOTA	MC914	F	RTL	-55	125		3.0		5	.56	.82	.02	* 24		.30	.84	A	140
NOR,DUAL 2 INPUT	MOTA	MC814	F	RTL	0	100		3.0		5	.55	.84		* 24		.40	.84	A	140
NOR,DUAL 2 INPUT	SPER	914	A	RTL	-55	125		3.0		5	.56	.82		12		.30		A,S	140
NOR,DUAL 2 INPUT	SW	SW311	A	ECL	-55	125		-5.2	49	* 26				6		1.66		19,S	216N
NOR,DUAL 2 INPUT	SW	SW310	A	ECL	-55	125		-5.2	49	* 26				6		1.66	.70	19,S	216M
NOR,DUAL 2 INPUT	SPRG	US-0710	F	RTL	-55	125		3.0	4					40				57,62	
NOR,DUAL 2 INPUT	SW	SW309	A	ECL	-55	125	- 1.15	-5.2	49	* 26				6		1.66	.70	19,S	216
NOR,DUAL 2 INPUT	SPER	925	A	RTL	-55	125		3.0		5	.56	.82		12		.30		A,S	140
NOR,DUAL 2 INPUT	PHIL	PL9609	A	RTL	-55	125		9.0	10					* 80				A	217
NOR,DUAL 2 INPUT EX	SIGN	LU316	A		10	55		4.5	18	12	1.40	2.50	.80	40		.60	3.30	B	222
NOR,DUAL 2 INPUT EX	SIGN	SU316	A	TTL	-20	85		4.5	18	12	1.40	2.70	.60	30		.60	3.30	S,B	222
NOR,DUAL 2-3 INPUT	GI	MEM900	K											100				18,62	265
NOR,DUAL 3 INPUT	PHIL	I34D3	A	RTL	-55	125		3.0	4	4	.55	.75	.05	40		.50	.83	B,U	140
NOR,DUAL 3 INPUT	AMEL	502B	A	TTL	-55	125		4.0	1	* 8			1.00	180		.25	3.80	C	
NOR,DUAL 3 INPUT	AMEL	126A	F	RTL	-55	125		3.0	18	* 10			.30	12		.25	.81	B,C	140
NOR,DUAL 3 INPUT	AMEL	126C	F	RTL	0	70		3.0	18	* 5			.25	16		.25	.81	B	140
NOR,DUAL 3 INPUT	AMEL	126B	F	RTL	-55	125		3.0	18	* 6			.26	12		.25	.81	B,C	140
NOR,DUAL 3 INPUT	AMEL	125B	F	RTL	-55	125		3.0	18	* 6			.26	12		.25	.81	B,C	140
NOR,DUAL 3 INPUT	AMEL	125C	F	RTL	0	70		3.0	18	* 5			.25	16		.25	.81	B	140
NOR,DUAL 3 INPUT	AMEL	536B	A	TTL	-55	125		4.0	5	* 6			1.00	100		.25	3.80	C	
NOR,DUAL 3 INPUT	AMEL	506B	A	TTL	-55	125		4.0	2	* 8			1.00	180		.25	3.80	C	
NOR,DUAL 3 INPUT	AMEL	576B	A	TTL	-55	125		5.0	10	* 6			1.00	35		.40	3.80	C	
NOR,DUAL 3 INPUT	AMEL	532B	A	TTL	-55	125		5.0	2	* 6			1.00	100		.25	3.80	C	
NOR,DUAL 3 INPUT	AMEL	125A	F	RTL	-55	125		3.0	18	* 10			.30	12		.25	.81	B,C	140
NOR,DUAL 3 INPUT	AMEL	572B	A	TTL	-55	125		5.0	8	* 6			1.00	35		.40	3.80	C	
NOR,DUAL 3 INPUT	FSC	L915C	A	RTL	0	100		3.0		5	.55	.84	.15	12		.40	1.45	B	140
NOR,DUAL 3 INPUT	FSC	L915	A	RTL	-55	125		3.0		5	.55	.84	.15	12		.40	1.45	B	140
NOR,DUAL 3 INPUT	FSC	FL91529	A	RTL	15	55		3.6	40	16				10				A	140
NOR,DUAL 3 INPUT	GI	PC14	H	DTL	-55	125	D 4.2	-3.0		5,4				8	12	.30	5.00	90	221
NOR,DUAL 3 INPUT	NSC	NB1015	A	RTL	-55	125		3.0	*54	13	.69			12		.15		12	140
NOR,DUAL 3 INPUT	NSC	NB2015	A	RTL	0	100		3.0	*54	13	.69			12		.15		12	140
NOR,DUAL 3 INPUT	PHIL	PL915	A	RTL	-55	125		3.0		5	.56	.82		12		.30		A,69	140
NOR,DUAL 3 INPUT	PHIL	PL978	A	RTL	-55	125		4.0	3	5	.45	.82		11		.40		41,51	140
NOR,DUAL 3 INPUT	SIGN	SU315	A	TTL	-20	85		4.5	18	12	1.40	2.70	.60	30		.60	3.30	S,B	222
NOR,DUAL 3 INPUT	SIGN	LU315	A		10	55		4.5	18	12	1.40	2.50	.80	40		.60	3.30	B	222
NOR,DUAL 3 INPUT	TI	SN514	F	RCTL	-55	125		3.0		5	.4W	1.1W		130		.4W	1.1W	T	218

CIRCUIT DESCRIPTION	MFR	MFRS PART NUMBER	TEC H	TYPE OF LOG- IC	OPER TEMP CENTGRDE MIN	MAX	SUPPLY VOLTAGE VDC NO. 2	NO. 1	PWR DIS MW	FAN- OUT	INPUT THRESHOLD VOLTS ZERO	ONE	NOISE IMMU- NITY VOLTS	DELAY NANO- SECS	OPER- ATING SPEED MHZ	OUTPUT LEVEL ZERO	ONE	PACK- AGE TYPE	SCHE- MATIC NO.
NOR,DUAL 3 INPUT	SPRG	US-0104	F	RCTL	-55	125		3.0	6	5	.4W	1.1W		130		.4W	1.1W	57,62	
NOR,DUAL 3 INPUT	PHIL	PL939	A	RTL	-55	125		3.0	4	4	.45	.75		* 45		.30		A,51	140
NOR,DUAL 3 INPUT	MOTA	MC915	F	RTL	-55	125		3.0		5	.56	.82	.02	* 24		.30	.84	A	140
NOR,DUAL 3 INPUT	MOTA	MC815	F	RTL	0	100		3.0		5	.55	.84		* 24		.40	.84	B	140
NOR,DUAL 3 INPUT	MOTA	MC362	F	ECL	0	70	- 1.15	-5.2	84	25	1.35	.95	.10			1.45	.80		216
NOR,DUAL 3 INPUT	SPER	915	A	RTL	-55	125		3.0		5	.56	.82		12		.30		A,S	140
NOR,DUAL 3 INPUT	MOTA	MC918	A	RTL	-55	125		3.0	4	4	.45	.75	.05	45		.30	.80	B	140
NOR,DUAL 3 INPUT	MOTA	MC312	F	ECL	-55	125	- 1.15	-5.2	63	* 26				6		1.66	.70	26,C	216
NOR,DUAL 3 INPUT	GI	MEM522	K					- 28.0	25		8.00	3.00	2.00	250		10.0	.20	18,82	263
NOR,DUAL 3 INPUT EX	PHIL	PL9603	A	RTL	-55	125		3.0		4	.49	.82	.06	8		.35	.88	69	218Q
NOR,DUAL 4 INPUT	AMEL	500B	A	TTL	-55	125		4.0	1	* 8			1.00	180		.25	3.80	C	
NOR,DUAL 4 INPUT	AMEL	584B	A	TTL	-55	125		5.0	10	* 6			1.00	35		.40	3.80	C	
NOR,DUAL 4 INPUT	AMEL	583B	A	TTL	-55	125		5.0	8	* 6			1.00	35		.40	3.80	C	
NOR,DUAL 4 INPUT	AMEL	587B	A	TTL	-55	125		5.0	8	* 6			1.00	35		.40	3.80	C	
NOR,DUAL 4 INPUT	AMEL	534B	A	TTL	-55	125		5.0	5	* 6			1.00	100		.25	3.80	C	
NOR,DUAL 4 INPUT	AMEL	504B	A	TTL	-55	125		4.0	2	* 8			1.00	180		.25	3.80	C	
NOR,DUAL 4 INPUT	AMEL	547B	A	TTL	-55	125		5.0	5	* 6			1.00	35		.25	3.80	C	
NOR,DUAL 4 INPUT	AMEL	543B	A	TTL	-55	125		5.0	2	* 6			1.00	35		.25	3.80	C	
NOR,DUAL 4 INPUT	AMEL	544B	A	TTL	-55	125		5.0	5	* 6			1.00	35		.25	3.80	C	
NOR,DUAL 4 INPUT	AMEL	548B	A	TTL	-55	125		5.0	2	* 6			1.00	35		.25	3.80	C	
NOR,DUAL 4 INPUT	AMEL	570B	A	TTL	-55	125		5.0	8	* 6			1.00	35		.40	3.80	C	
NOR,DUAL 4 INPUT	AMEL	574B	A	TTL	-55	125		5.0	10	* 6			1.00	35		.40	3.80	C	
NOR,DUAL 4 INPUT	AMEL	530B	A	TTL	-55	125		5.0	2	* 6			1.00	100		.25	3.80	C	
NOR,QUAD 2 INPUT	AMEL	501B	A	TTL	-55	125		4.0	2	* 8			1.00	180		.25	3.80	C	
NOR,QUAD 2 INPUT	AMEL	128A	F	RTL	-55	125		3.0	18	* 10			.30	12		.25	.81	B,C	140
NOR,QUAD 2 INPUT	AMEL	575B	A	TTL	-55	125		5.0	21	* 6			1.00	35		.40	3.80	C	
NOR,QUAD 2 INPUT	AMEL	128B	F	RTL	-55	125		3.0	18	* 2			.26	12		.25	.81	B,C	140
NOR,QUAD 2 INPUT	AMEL	531B	A	TTL	-55	125		5.0	5	* 6			1.00	100		.25	3.80	C	
NOR,QUAD 2 INPUT	AMEL	128C	F	RTL	0	70		3.0	18	* 5			.25	16		.25	.81	B	140
NOR,QUAD 2 INPUT	AMEL	535B	A	TTL	-55	125		5.0	10	* 6			1.00	100		.25	3.80	C	
NOR,QUAD 2 INPUT	AMEL	505B	A	TTL	-55	125		4.0	4	* 8			1.00	180		.25	3.80	C	
NOR,QUAD 2 INPUT	AMEL	571B	A	TTL	-55	125		5.0	16	* 6			1.00	35		.40	3.80	C	
NOR,QUAD 2 INPUT	PHIL	PL983	A	RTL	-55	125		3.0	3	5	.45	.80		* 50		.35		41,51	140
NOR,QUAD 2 INPUT	RCA	CD2101	A	ECL	-55	125		-5.2	30	* 12	1.30	.95	.10	24		1.50	.85	82	209
NOR,TRIPLE 2 INPUT	SPRG	US-0113	F	RCTL	-55	125		3.0	4	10,5								57,62	
NOR,TRIPLE 2 INPUT	SPRG	US-0112	F	RCTL	-55	125		3.0	4	5								57,62	
NOR,TRIPLE 2 INPUT	TI	SN516	F	RCTL	-55	125		3.0		5	.4W	1.1W		150		.4W	1.1W	F	218
NOR,TRIPLE 2 INPUT	TI	SN5162	F	RCTL	-55	125		3.0		5	.4W	1.1W		68		.4W	1.1W	F	218
NOR,TRIPLE 2 INPUT	TI	SN5161	F	RCTL	-55	125		3.0		5	.4W	1.1W		68		.4W	1.1W	F	218
NOR,TRIPLE 3 INPUT	AMEL	503B	A	TTL	-55	125		4.0	2	* 8			1.00	180		.25	3.80	C	
NOR,TRIPLE 3 INPUT	AMEL	537B	A	TTL	-55	125		4.0	7	* 6			1.00	100		.25	3.80	C	
NOR,TRIPLE 3 INPUT	AMEL	507B	A	TTL	-55	125		4.0	3	* 8			1.00	180		.25	3.80	C	
NOR,TRIPLE 3 INPUT	AMEL	533B	A	TTL	-55	125		5.0	4	* 6			1.00	100		.25	3.80	C	
NOR,TRIPLE 3 INPUT	AMEL	577B	A	TTL	-55	125		5.0	16	* 6			1.00	35		.40	3.80	C	
NOR,TRIPLE 3 INPUT	AMEL	573B	A	TTL	-55	125		5.0	12	* 6			1.00	35		.40	3.80	C	
NOR,TRIPLE 3 INPUT	PHIL	PL985	A	RTL	-55	125		3.0	3	5	.45	.80		* 22		.35		41,51	140
NOR,2 INPUT	PHIL	134B	A	RTL	-55	125		3.0	10	30		.75		60		.50	.83	A,U	217
NOR,2 INPUT	PHIL	PL909	A	RTL	-55	125		3.0	10	30	.45	.75	.05	80		.30	.80	A,51	217

CIRCUIT DESCRIPTION	MFR	MFRS PART NUMBER	TEC H	TYPE OF LOG- IC	OPER TEMP CENTGRDE MIN	MAX	SUPPLY VOLTAGE VDC NO. 2	NO. 1	PWR DIS MW	FAN- OUT	INPUT THRESHOLD VOLTS ZERO	ONE	NOISE IMMU- NITY VOLTS	DELAY NANO- SECS	OPER- ATING SPEED MHZ	OUTPUT LEVEL ZERO	ONE	PACK- AGE TYPE	SCHE- MATIC NO.
NOR,2 INPUT	PHIL	PL976	A	RTL	-55	125		4.0	10	33	.45	.82		26		.40		41,51	217
NOR,2 INPUT	NSC	NC2009	A	RTL	0	100		3.0	10	30	.69	.77		* 24		.15		2	217
NOR,2 INPUT	MOTA	MC909	A	RTL	-55	125		3.0	10	30	.45	.75	.05	80		.30	.80	A	217
NOR,2 INPUT	TI	SN730	A	RTL	-55	125		3.0	15	30				70				A,T	140
NOR,2 INPUT	FSC	MWL909	A	RTL	-55	125		3.0	10	30	.45	.75	.05	80		.30	.80	A	217
NOR,2 INPUT	NSC	NC1009	A	RTL	-55	125		3.0	10	30	.69	.77		* 24		.15		2	217
NOR,2 INPUT	SPRG	US-0709	F	RTL	-55	125		3.0	10					80				57,62	
NOR,2 INPUT EXPANDABLE	PHIL	PL9602	A	RTL	-55	125		3.0		32,4	.49	.82	.06	10		.35	.88	69	217
NOR,3 INPUT	AMEL	121C	F	RTL	0	70		3.0	10	* 5			.25	16		.25	.81	B	
NOR,3 INPUT	AMEL	121A	F	RTL	-55	125		3.0	10	* 10			.30	12		.25	.81	B,C	
NOR,3 INPUT	AMEL	121B	F	RTL	-55	125		3.0	10	* 6			.26	12		.25	.81	B,C	
NOR,3 INPUT	FSC	L903C	A	RTL	0	100		3.0		5	.60	.90	.30	12		.30	1.45	A,D	140
NOR,3 INPUT	FSC	L903	A	RTL	-55	125		3.0		5	.60	.90	.30	12		.30	1.45	A,D	140
NOR,3 INPUT	FSC	FL90329	A	RTL	15	55		3.6	20	16				10				A	140
NOR,3 INPUT	NSC	NB1003	A	RTL	-55	125		3.0	*27	13	.69			12		.15		2	140
NOR,3 INPUT	PHIL	PL903	A	RTL	-55	125		3.0		5	.56	.82		12		.30		A,69	140
NOR,3 INPUT	NSC	NB2003	A	RTL	0	100		3.0	*27	13	.69			12		.15		2	140
NOR,3 INPUT	MOTA	MC803	F	RTL	0	100		3.0		5	.55	.84		* 24		.40	.84	A	140
NOR,3 INPUT	MOTA	MC903	F	RTL	-55	125		3.0		5	.56	.82	.02	* 24		.30	.84	A	140
NOR,3 INPUT	GI	MEM503	K					- 28.0	40		8.00	2.00	1.80			10.0	.20		263
NOR,3 INPUT EXPANDABLE	INTX	GBXXXXX	L	RTL	-55	125		* 12.0		15,4					* 5			78	124
NOR,4 INPUT	TI	SN17911L		TTL	-55	125		3.0	3	4				40				1	
NOR,4 INPUT	AMEL	122A	F	RTL	-55	125		3.0	10	* 10			.30	12		.25	.81	B,C	
NOR,4 INPUT	AMEL	122B	F	RTL	-55	125		3.0	10	* 6			.26	12		.25	.81	B,C	
NOR,4 INPUT	AMEL	122C	F	RTL	0	70		3.0	10	* 5			.25	16		.25	.81	B	
NOR,4 INPUT	FSC	L907C	A	RTL	0	100		3.0		5	.60	.90	.30	12		.30	1.45	A,D	140
NOR,4 INPUT	FSC	L907	A	RTL	-55	125		3.0		5	.60	.90	.30	12		.30	1.45	A,D	140
NOR,4 INPUT	NSC	NB2007	A	RTL	0	100		3.0	*27	13	.69			12		.15		2	140
NOR,4 INPUT	NSC	NB1007	A	RTL	-55	125		3.0	*27	13	.69			12		.15		2	140
NOR,4 INPUT	PHIL	PL907	A	RTL	-55	125		3.0		5	.56	.82		12		.30		A,69	140
NOR,4 INPUT	VARO	8102	E	RTL	-55	100	20.0	-6.0										72	210
NOR,4 INPUT	TI	SN733	A	RTL	-55	125		3.0	4	4,3				* 70				A,T	
NOR,4 INPUT	MOTA	MC807	F	RTL	0	100		3.0		5	.55	.84		* 24		.40	.84	A	140
NOR,4 INPUT	MOTA	MC907	F	RTL	-55	125		3.0		5	.56	.82	.02	* 24		.30	.84	A	140
NOR,4 INPUT	SPRG	US-0115	F	RCTL	-55	125		3.0	8	* 5								57,62	
NOR,4 INPUT	SPRG	US-0114	F	RCTL	-55	125		3.0	8	* 5								57,62	
NOR,4 INPUT EXPANDABLE	GI	NC10	H	DTL	-55	125	D 4.2	-3.0		5,4				8	12	.30	5.00	0	221
NOR,5 INPUT	AMEL	123A	F		-55	125		3.0		* 10			.30	14		.25	.81	B,C	
NOR,5 INPUT	AMEL	123B	F		-55	125		3.0		* 6			.26	17		.25	.81	B,C	
NOR,5 INPUT	AMEL	123C	F		0	70		3.0		* 5			.25	21		.25	.81	B	
NOR,6 INPUT	NSC	NB2017	A	RTL	0	100		3.0	*27	13				12		.15		12	140
NOR,6 INPUT	NSC	NB1017	A	RTL	-55	125		3.0	*27	13				12		.15		12	140
NOR,6 INPUT	SPRG	US-0102	F	RCTL	-55	125		3.0	2	5	.4W	1.1W		150		.4W	1.1W	57,62	
NOR,6 INPUT	SPRG	US-0103	F	RCTL	-55	125		3.0	2	25,5	.4W	1.1W		175		.4W	1.8W	57,62	
NOR,6 INPUT	TI	SN513	F	RCTL	-55	125		3.0		25,5	.4W	1.1W		175		.4W	1.8W	T	218
NOR,6 INPUT	TI	SN512	F	RCTL	-55	125		3.0		5	.4W	1.1W		150		.4W	1.1W	T	218
NOR,6 INPUT EXPANDABLE	GI	PC10	H	DTL	-55	125	D 4.2	-3.0		5,4				8	12	.30	5.00	90	221
NOR,7 INPUT	SIGN	SU314	A	TTL	-20	85		4.5	18	12	1.40	2.70	.60	30		.60	3.30	S,8	222

CIRCUIT DESCRIPTION	MFR	MFRS PART NUMBER	TEC H	TYPE OF LOG- IC	OPER TEMP CENTGRDE MIN	MAX	SUPPLY VOLTAGE VDC NO. 2	NO. 1	PWR DIS MW	FAN- OUT	INPUT THRESHOLD VOLTS ZERO	ONE	NOISE IMMU- NITY VOLTS	DELAY NANO- SECS	OPER- ATING SPEED MHZ	OUTPUT LEVEL ZERO	ONE	PACK- AGE TYPE	SCHE- MATIC NO.
NOR,7 INPUT	SIGN	LU314	A		10	55		4.5	18	12	1.40	2.50	.80	40		.60	3.30	B	222
OR DUAL 5 INPUT	AMEL	322CJ	A	DTL	0	70		12.0	98	6			4.80	60		1.20	12.00	68	298
OR DUAL 5 INPUT	AMEL	322BG	A	DTL	-55	125		12.0	98	6			4.80	60		1.20	12.00	30	298
OR DUAL 5 INPUT	AMEL	322CG	A	DTL	0	100		12.0	98	6			4.80	60		1.20	12.00	30	298
OR QUAD 2 INPUT	AMEL	321CG	A	DTL	0	100		12.0	96	6			4.80	60		1.20	12.00	30	298
OR QUAD 2 INPUT	AMEL	3218G	A	DTL	-55	125		12.0	96	6			4.80	60		1.20	12.00	30	298
OR QUAD 2 INPUT	AMEL	321CJ	A	DTL	0	70		12.0	96	6			4.80	60		1.20	12.00	68	298
OR-NAND,DUAL 2-2 INPUT	PHIL	PL4G01	K	MOS	-55	125	-12.0	-24.0	*20		3.00	9.00	1.00	800	.10	2.00	10.00	C,77	223
OR/NOR, 4 INPUT	PHIL	134G	A	RTL	-55	125		3.0	4	4	.55	.75	.05	70		.50	.83	B,U	213
OR/NOR,DUAL 4 INPUT	RCA	CD2150	A	ECL	10	60		-5.0	110	* 12	1.40	1.00	.15	7		1.60	.85	82	210
OR/NOR,DUAL 4 INPUT	RCA	CD2100	A	ECL	-55	125		-5.2	44	* 12	1.30	.95	.10	24		1.50	.85	82	209
OR/NOR,DUAL 4 INPUT	RCA	CD2151	A	ECL	10	60		-5.0	88	* 12	1.40	1.00	.15	7		1.60	.85	82	210
OR/NOR,DUAL 4 INPUT	WMED	WS371	A	ECL	10	60		-5.0	115	* 15	1.6T	.8T		10		1.6T	.8T	S	210
OR/NOR,3 INPUT EX	MOTA	MC356	A	ECL	0	75	- 1.15	-5.2	35	* 26				6		1.66	.70	13,C	211
OR/NOR,3 INPUT EX	MOTA	MC306	A	ECL	-55	125	- 1.15	-5.2	35	* 26	1.30	1.00	.30	6		1.66	.70	10,S	211
OR/NOR,3 INPUT EX	MOTA	MC307	A	ECL	-55	125	- 1.15	-5.2	35	* 26	1.30	1.00		6		1.66		10,S	211L
OR/NOR,3 INPUT EX	MOTA	MC357	A	ECL	0	75	- 1.15	-5.2	35	* 26				6		1.66	.70	13,C	211L
OR/NOR,3 INPUT EX	SW	SW307	A	ECL	-55	125	- 1.15	-5.2	35	26	1.30	1.00	.30	6		1.66		19,S	211
OR/NOR,3 INPUT EX	SW	SW306	A	ECL	-55	125	- 1.15	-5.2	35	26	1.30	1.00	.30	6		1.66	.70	19,S	211
OR/NOR,4 INPUT	FSC	L924	A	RTL	15	55		3.6						• 30				A	212
OR/NOR,4 INPUT	FSC	MWL911	A	RTL	-55	125		3.0	4	4,3	.45	.75	.05	80		.30	.80	A	213
OR/NOR,4 INPUT	FSC	FL91129	A	RTL	15	55		3.6	6	4				25				A	213
OR/NOR,4 INPUT	NSC	NC2011	A	RTL	0	100		3.0	4	4,3	.69	.77		12		.15		2	213
OR/NOR,4 INPUT	NSC	MC1011	A	RTL	-55	125		3.0	4	4,3	.69	.77		12		.15		2	213
OR/NOR,4 INPUT	PHIL	PL980	A	RTL	-55	125		4.0	3	5	.45	.82		25		.40		41,51	213
OR/NOR,4 INPUT	PHIL	PL911	A	RTL	-55	125		3.0	4	4,3	.45	.75	.05	• 80		.30	.80	A,51	213
OR/NOR,4 INPUT	SPRG	US-0711	F	RTL	-55	125		3.0	4					• 80				57,62	
OR/NOR,4 INPUT	MOTA	MC911	A	RTL	-55	125		3.0	4	4,3	.45	.75	.05	80		.30	.80	A	213
OR/NOR,5 INPUT	MOTA	MC301	A	ECL	-55	125	- 1.15	-5.2	35	• 26	1.30	1.00	.30	6		1.66	.70	10,S	211
OR/NOR,5 INPUT	MOTA	MC351	F	ECL	0	75	- 1.15	-5.2	*50	• 25	1.35	.95	.10			1.45	.80		211
OR/NOR,5 INPUT	SW	SW301	A	ECL	-55	125	- 1.15	-5.2	35	• 25	1.30	1.00	.30	6		1.66	.70	19,S	211
OR/NOR,8 INPUT	RCA	CD2152	A	ECL	10	60		-5.0	147	• 12	1.40	1.00	.15	7		1.60	.85	82	214
OR/NOR,8 INPUT	WMED	WS374	A	ECL	10	60		-5.0	115	• 15	1.6T	.8T		10		1.6T	.8T	S	210
OR/NOR,9 INPUT	VARO	8204	E	DTL	-55	125	C 3.0	-3.0	150	4	.50	3.50		• 20		.50	3.50	72	215
OR,DUAL 2 INPUT EX	SIGN	SU331	A	TTL	-20	85		4.5	40	• 12	1.40	2.50	.80	35		.60	3.30	S,B	224
OR,DUAL 2 INPUT EX	SIGN	LU331	A		10	55		4.5	36	• 12	1.40	2.50	.80	35		.60	3.30	B	224
OR,DUAL 3 INPUT	SIGN	LU332	A	TTL	10	55		4.5	36	• 12	1.40	2.50	.80	35		.60	3.30	B	224
OR,DUAL 3 INPUT	SIGN	SU332	A	TTL	-20	85		4.5	40	• 12	1.40	2.50	.80	35		.60	3.30	S,B	224
OR,DUAL 4 INPUT	CORN	0065	D	RTL	-55	125	1.8	-3.0	220	6				5				71	109
OR,DUAL 4 INPUT EX	SYL	SG170	A	TTL	-55	125		5.0	10		1.20	1.70	.90	1	20	.65	4.80	H,G	319
OR,DUAL 4 INPUT EX	SYL	SG171	A	TTL	-55	125		5.0	10		1.20	1.70	.90	1	20	.65	4.80	H,G	319
OR,DUAL 4 INPUT EX	SYL	SG172	A	TTL	0	75		5.0	10		1.20	1.80	.90	1	20	.65	4.80	H,G	319
OR,DUAL 4 INPUT EX	SYL	SG173	A	TTL	0	75		5.0	10		1.20	1.80	.90	1	20	.65	4.80	H,G	319
OR,DUAL 4 INPUT EX	TRAN	TNG3281	B	TTL	-55	125		5.0	22	15			1.00	10	40	.45	3.20	H,47	272
OR,DUAL 4 INPUT EX	TRAN	TNG3282	B	TTL	0	75		5.0	22	15			1.00	10	40	.45	3.10	H,47	272
OR,DUAL 4 INPUT EX	TRAN	TNG3283	B	TTL	-55	125		5.0	22	7			1.00	10	40	.45	3.20	H,47	272
OR,DUAL 4 INPUT EX	TRAN	TNG3284	B	TTL	0	75		5.0	22	7			1.00	10	40	.45	3.10	H,47	272
OR,QUAD 2 INPUT EX	SYL	SG150	A	TTL	-55	125		5.0	20		1.20	1.70	.90	1	20	.65	4.80	H,G	258

CIRCUIT DESCRIPTION	MFR	MFRS PART NUMBER	T EC H	TYPE OF LOG- IC	OPER TEMP CENTGRDE MIN	MAX	SUPPLY VOLTAGE VDC NO. 2	NO. 1	PWR DIS MW	FAN- OUT	INPUT THRESHOLD VOLTS ZERO	ONE	NOISE IMMU- NITY VOLTS	DELAY NANO- SECS	OPER- ATING SPEED MHZ	OUTPUT LEVEL ZERO	ONE	PACK- AGE TYPE	SCHE- MATIC NO.
OR,QUAD 2 INPUT EX	SYL	SG151	A	TTL	-55	125		5.0	20		1.20	1.70	.90	1	20	.65	4.80	H,G	258
OR,QUAD 2 INPUT EX	SYL	SG152	A	TTL	0	75		5.0	20		1.20	1.80	.90	1	20	.65	4.80	H,G	258
OR,QUAD 2 INPUT EX	SYL	SG153	A	TTL	0	75		5.0	20		1.20	1.80	.90	1	20	.65	4.80	H,G	258
OR,QUAD 2 INPUT EX	TRAN	TNG4445	B	TTL	-55	125		5.0	22	15			1.00	10	40	.45	3.20	H,47	300
OR,QUAD 2 INPUT EX	TRAN	TNG4448	B	TTL	0	75		5.0	22	7			1.00	10	40	.45	3.10	H,47	300
OR,QUAD 2 INPUT EX	TRAN	TNG4446	B	TTL	0	75		5.0	22	15			1.00	10	40	.45	3.10	H,47	300
OR,QUAD 2 INPUT EX	TRAN	TNG4447	B	TTL	-55	125		5.0	22	7			1.00	10	40	.45	3.20	H,47	300
OR,3 INPUT EXPANDABLE	INTX	GGXXXXX	L	RTL	-55	125		* 12.0		3					* 5			78	220
OR,4 INPUT	FSC	SH2101			-55	125		3.0			.45	.75		* 180		.22		A	
PULSE SHAPER,W/C	VARO	8205	E	DTL	-55	125	C 3.0	-3.0	150	4,3	.50	3.50				.50	3.50	72	225
R-S	AMEL	116B	F	RTL	-55	125		3.0	20	* 3				17		.25	.81	B,C	
R-S	AMEL	116A	F	RTL	-55	125		3.0	20	* 3				13		.25	.81	B,C	
R-S	AMEL	116C	F	RTL	0	70		3.0	20	* 3				17		.25	.81	B	
R-S	NSC	NB1002	A	RTL	-55	125		3.0	22	12	.69	.77		* 25		.15		2	226
R-S	NSC	NB2002	A	RTL	0	100		3.0	22	12	.69	.77		* 25		.15		2	226
R-S	FSC	L902	A	RTL	-55	125		3.0	22	4	.56	.82		14		.30		A,D	226
R-S	GI	MCPC8	H		-55	125	12.0	4.2	*D2	5,3		3.80		25	20	.30	5.00	0,90	
R-S	PHIL	PL902	A	RTL	-55	125		3.0	22	4	.56	.82		14		.30		A,69	226
R-S	FSC	L902C	A	RTL	0	100		3.0	22	4	.55	.84		14		.40		A,D	226
R-S	TI	SN337	A	DTL	0	65	6.0	- 3.0	90	12				250		.70		F	228
R-S	NSC	NB2023	A	RTL	0	100		3.0	22	12	.69	.77		25		.15		2	227
R-S	NSC	NB1023	A	RTL	-55	125		3.0	22	12	.69	.77		25		.15		2	130
R-S	MOTA	MC802	F	RTL	0	100		3.0	22	4	.55	.84		* 25		.40	.84	A	226
R-S	MOTA	MC902	F	RTL	-55	125		3.0	22	4	.56	.82	.02	* 25		.30	.84	A	226
R-S	SW	SWF12	A	TTL	0	75		5.0	30	12					20			27,C	244
R-S	SW	SWF10	A	TTL	-55	125		5.0	30	15					20			27,C	244
R-S	SW	SWF11	A	TTL	-55	125		5.0	30	7					20			27,C	244
R-S	SW	SWF13	A	TTL	0	75		5.0	30	6					20			27,C	244
R-S-T,CLOCKED OR DIRECT	TI	SN15850		DTL	0	75		5.0	20	8					7	.45	2.60	F	304
R-S-T,CLOCKED OR DIRECT	TI	SN15950		DTL	-55	125		5.0	20	8					20	.40	2.60	F	304
R-S-T,CLOCKED OR DIRECT	TI	SN15850N		DTL	0	75		5.0	20	8					7	.45	2.40	H	304
R-S/J-K AND INPUT	TI	SN54948	B	TTL	-55	125		5.0	40	10	.80	2.00	.40	30	15	.40	2.40	F	309
R-S/J-K AND INPUT	TI	SN74948	F	TTL	0	70		5.0	40	10	.80	2.00	.40	30	15	.40	2.40	F	309
R-S/J-K CLOCKED OR DIR	TI	SN15845N		DTL	0	75		5.0	20	10					7	.45	2.40	H	303
R-S/J-K CLOCKED OR DIR	TI	SN15848N		DTL	0	75		5.0	20	11					7	.45	2.40	H	303
R-S/J-K CLOCKED OR DIR	TI	SN15831N		DTL	0	75		5.0	20	7					7	.45	2.40	H	149
R-S/J-K CLOCKED OR SET	TI	SN15931		DTL	-55	125		5.0	20	7					7	.40	2.60	F	149
R-S/J-K CLOCKED OR SET	TI	SN15831		DTL	0	75		5.0	20	7					7	.45	2.60	F	149
R-S/J-K CLOCKED OR SET	TI	SN15848		DTL	0	75		5.0	20	11					7	.45	2.60	F	303
R-S/J-K CLOCKED OR SET	TI	SN15845		DTL	0	75		5.0	20	10					7	.45	2.60	F	303
R-S/J-K CLOCKED OR SET	TI	SN15948		DTL	-55	125		5.0	20	9					7	.40	2.60	F	303
R-S/J-K CLOCKED OR SET	TI	SN15945		DTL	-55	125		5.0	20	10					7	.40	2.60	F	303
R-S,CLOCKED	MEPC	640703	M	DTL	-55	125	6.0	-3.0		5				15	10			60	229
R-S,CLOCKED	VARO	8105	E	DTL	-55	125	20.0	-2.0	241	4					1	.50		72	230
R-S,CLOCKED	GI	MEM529	K		-55	125		- 28.0	*80		6.00	3.00	2.90		* 1	9.00	.10	18,82	264
R-S,CLOCKED OR DIR 2 PH	SYL	SF22	B	TTL	0	75		5.0	*60	12	1.20	1.80	.80	* 25	20	.40	3.10	G,H	234
R-S,CLOCKED OR DIR 2 PH	SYL	SF23	B	TTL	0	75		5.0	*60	6	1.20	1.80	.80	* 25	20	.40	3.10	G,H	234
R-S,CLOCKED OR DIR 2 PH	SYL	SF21	B	TTL	-55	125		5.0	*60	7	1.20	1.70	.80	* 25	20	.40	3.20	G,H	234

CIRCUIT DESCRIPTION	MFR	MFRS PART NUMBER	TECH	TYPE OF LOGIC	OPER TEMP CENTGRDE MIN	OPER TEMP CENTGRDE MAX	SUPPLY VOLTAGE VDC NO. 2	SUPPLY VOLTAGE VDC NO. 1	PWR DIS MW	FAN-OUT	INPUT THRESHOLD VOLTS ZERO	INPUT THRESHOLD VOLTS ONE	NOISE IMMUNITY VOLTS	DELAY NANOSECS	OPERATING SPEED MHZ	OUTPUT LEVEL ZERO	OUTPUT LEVEL ONE	PACKAGE TYPE	SCHEMATIC NO.
R-S,CLOCKED OR DIR 2 PH	SYL	SF20	B	TTL	-55	125		5.0	*60	15	1.20	1.70	.80	* 25	20	.40	3.20	G,H	234
R-S,CLOCKED OR DIR 2 PH	TRAN	TFF3013	B	TTL	-55	125		5.0	30	7	1.20	1.70	.70	* 18		.45	2.40	47,H	234
R-S,CLOCKED OR DIR 2 PH	TRAN	TFF3011	B	TTL	-55	125		5.0	30	15	1.20	1.30	.70	* 18		.45	2.40	47,H	234
R-S,CLOCKED OR DIR 2 PH	TRAN	TFF3012	B	TTL	0	75		5.0		15	1.20	1.70	.70	* 18		.45	2.40	47,H	234
R-S,CLOCKED OR DIR 2 PH	TRAN	TFF3014	B	TTL	0	75		5.0		7	1.20	1.70	.70	* 18		.45	2.40	47,H	234
R-S,CLOCKED OR DIRECT	PHIL	2648	A	DTL	-55	125	4.0	-2.0	I6	8		2.50		25	.20	.40		B,U	231
R-S,CLOCKED OR DIRECT	TI	SN54271R	B	TTL	-55	125		5.0		10	2.00	.70	.40	46	2	.30	2.40	F	309
R-S,CLOCKED OR DIRECT	TI	SN74L71R	A	TTL	0	70		5.0		10	2.00	.70	.40	46	2	.30	2.40	F	309
R-S,CLOCKED OR DIRECT	TI	SN14313		DTL	0	75		6.0		9	1.00	2.00	.55	60		.45	3.50	F	233
R-S,CLOCKED OR DIRECT	TI	SN14213	B	DTL	-55	125		8.0	50	9			.55	60		.45	3.50	F	233
R-S,CLOCKED OR DIRECT	MOTA	MC913	A	RTL	-55	125		3.0	12		.45	.75	.05			3.00	.80	A	240
R-S,CLOCKED OR DIRECT	SIGN	SE124	F	DTL	-55	125	4.0	-2.0	*26	* 8				* 40				B,S	231
R-S,CLOCKED OR DIRECT	VARO	8200	E	DTL	-55	125	6.0	3.0	165	4		3.80		10	20	.50	3.50	72	232
R-S,CLOCKED OR DIRECT	RAY	RM213	A	DTL	-55	125		6.0	*55	9	.70	1.60	.40	* 60	12	.30	3.50	FS,21	233
R-S,CLOCKED OR DIRECT	WMED	WM213	A	DTL	-55	125		6.0	*55	9	.70	1.60	.40	* 60	11	.30	3.50	21,FS	233
R-S,CLOCKED OR DIRECT	FSC	SE124	A	DTL	-55	125		4.0	I6					52	10	.50	2.50	B,S	231
R-S,CLOCKED OR DIRECT	INTX	FFXXXXX	L	RTL	-55	125		7.5	*92	4				17	* 5			78	229
R-S,CLOCKED OR DIRECT	TI	SN5101	F	RCTL	-55	125		3.0	2	4		1.15		* 500	.80	.22	1.15	F,T	235
R-S,CLOCKED OR DIRECT	INTX	FFXXXXX	L	RTL	-55	125		9.0	*65	4				16	* 5			78	229
R-S,CLOCKED OR DIRECT	SPRG	US-0110	A	RCTL	-55	125		3.0	2	4								57	
R-S,CLOCKED OR DIRECT	SPRG	US-0111	F	RCTL	-55	125		3.0	3	20,4								57	
R-S,CLOCKED OR DIRECT	MOTA	MC209	A	DTL	-55	125	4.0	-2.0	I6	* 8	.60	2.80		* 80	10	.80	2.50	13,S	234
R-S,CLOCKED OR DIRECT	TI	SN5111	F	RCTL	-55	125		3.0	2	20,4		1.15		* 500	.80	.22	1.50	F,T	235
R-S,CLOCKED OR DIRECT	SW	SWF23	A	TTL	0	75		5.0	35	6					20			C	234
R-S,CLOCKED OR DIRECT	SW	SWF22	A	TTL	0	75		5.0	35	12					20			C	234
R-S,CLOCKED OR DIRECT	SW	SWF21	A	TTL	-55	125		5.0	35	7					20			C	234
R-S,CLOCKED OR DIRECT	SW	SWF20	A	TTL	-55	125		5.0	35	15					20			C	234
R-S,CLOCKED OR DIRECT	MOTA	MC652		DTL	0	75	10.0	- 10.0	210	4				50		.72	9.60		259
R-S,CLOCKED OR DIRECT	WMED	WC213	A	DTL	0	75		6.0	35	7	1.00	1.80		30	10	.45		21,F	233
R-S,CLOCKED OR DIRECT	PHIL	PL9988	A	TTL	-55	125		3.0	E22	3	.42	.85	.19		5	.23	1.00	41	274
R-S,CLOCKED OR SET DIR	SPRG	US-0101	F	RCTL	-55	125		3.0	2	20,4		1.15		* 500	.80	.22	1.50	57	
R-S,CLOCKED OR SET DIR	TI	SN510	F	RCTL	-55	125		3.0	2	4		1.15		* 500	.80	.22	1.15	T	235U
R-S,CLOCKED OR SET DIR	TI	SN511	F	RCTL	-55	125		3.0	2	20,4		1.15		* 500	.80	.22	1.50	T	235U
R-S,CLOCKED OR SET DIR	SPRG	US-0100	F	RCTL	-55	125		3.0	2	4		1.15		* 500	.80	.22	1.15	57	
R-S,CLOCKED 2 PHASE	TRAN	TFF3031	B	TTL	15	55		5.0		7	1.00	2.80	.50	* 25		.50	2.50	47,H	234
R-S,DUAL	CORN	0067	D	RTL	0	70	1.8	-3.0	140	6				# 9	80			71	236
R-S,DUAL CLOCKED OR DIR	SIGN	SE424	A	DTL	-55	125		4.0	*14	* 7	.70	2.10	.40	* 150	9	.30	2.70	X	237
R-S,DUAL PULSE TRIGGER	RAD	RD221	S	DTL	-55	125		5.0	24	8			.80	19	20		2.50	F	326
R-S,DUAL PULSE TRIGGER	RAD	RD321	S	DTL	-55	125		5.0	24	5			.80	19	20		2.50	F	326
R-S,DUAL 2 INPUT AND	NSC	NB1019	A	RTL	-55	125		3.0	44	12	.69	.77		* 25		.15		2	226
R-S,DUAL 2 INPUT AND	NSC	NB2019	A	RTL	0	100		3.0	44	12	.69	.77		* 25		.15		2	226
R-S,SP CLCKD OR DIRECT	ITT	M1C950	A	DTL	-55	125		5.0	*44	* 8	.80	1.90		30	20	.40	2.60	C,B,H	322
R-S,SP CLCKD OR DIRECT	FSC	DTL950	A	DTL	-55	125		5.0	50	10				20				C,B	
R-S,SP CLCKD OR DIRECT	FSC	FL95029	A	DTL	0	70		5.0	50	10				20					
R-S,SP CLCKD OR DIRECT	SIGN	CS729	F	DTL	-55	125		4.0	*30	* 7				* 95		.35	3.10	X	231
R-S,SP CLCKD OR DIRECT	INTX	FFXXXXX	L	RTL	-55	125		7.5	*92	4				17	* 5			78	229
R-S,SP CLCKD OR DIRECT	SW	SWF31	A	TTL	-55	125		5.0	30	7					12			27,C	238
R-S,SP CLCKD OR DIRECT	SW	SWF32	A	TTL	0	75		5.0	30	12					12			27,C	238

CIRCUIT DESCRIPTION	MFR	MFRS PART NUMBER	TEC H	TYPE OF LOG- IC	OPER TEMP CENTGRDE MIN	MAX	SUPPLY VOLTAGE VDC NO. 2	NO. 1	PWR DIS MW	FAN- OUT	INPUT THRESHOLD VOLTS ZERO	ONE	NOISE IMMU- NITY VOLTS	DELAY NANO- SECS	OPER- ATING SPEED MHZ	OUTPUT LEVEL ZERO	ONE	PACK- AGE TYPE	SCHE- MATIC NO.
R-S,SP CLCKD OR DIRECT	SW	SWF33	A	TTL	0	75		5.0	30	6					12			27,C	238
R-S,SP CLCKD OR DIRECT	SW	SWF30	A	TTL	-55	125		5.0	30	15					12			27,C	238
R-S,SP CLCKD OR DIRECT	SYL	SF31	B	TTL	-55	125		5.0	30	7	1.20	1.70	.75		12	.45	3.00	G,H	238
R-S,SP CLCKD OR DIRECT	SYL	SF30	B	TTL	-55	125		5.0	30	15	1.20	1.70	.75		12	.45	3.00	G,H	238
R-S,SP CLCKD OR DIRECT	SYL	SF32	B	TTL	0	75		5.0	30	12	1.20	1.70	.75		12	.45	3.00	G,H	238
R-S,SP CLCKD OR DIRECT	SYL	SF33	B	TTL	0	75		5.0	30	6	1.20	1.70	.75		12	.45	3.00	G,H	238
R-S,SP CLCKD OR SET DIR	MOTA	MC260	F	DTL	0	75	4.0	-2.0	16					* 90		.55	2.50	13	231
R-S,SP CLCKD OR SET DIR	SIGN	CS704	A	DTL	-55	125	4.0	-2.0	*26	* 8				* 40				B,S	231
R-S,SP CLCKD OR SET DIR	FSC	CS704	A	DTL	-55	125	4.0	-2.0	*26	* 8				* 40				B,S	231
R-S,SPLIT CLOCKED	GI	PC13	H		-55	125	12.0	4.2	*02	* 8		3.00				.30	5.00	90	239
R-S,SPLIT CLOCKED	VARO	8107	E	DTL	-55	125	20.0	-2.0	241	4					1	.50		72	229
R-S,TYPE D	PHIL	134R	A	RTL	-55	125		3.0	10			.75		120		.50	.83	B,U	240
R-S,TYPE D	MOTA	MC259	F	DTL	0	75	4.0	-2.0	16		.55	2.00		* 90		.55	2.50	13	231
R-S,TYPE D	PHIL	PL913	A	RTL	-55	125		3.0	12	3	.45	.75	.05	* 100		.30	.80	A,51	240
R-S,TYPE D	FSC	MWL913	A	RTL	-55	125		3.0	12	3	.45	.75	.05	* 100		.30	.80	A	240
R-S,TYPE D	PHIL	PL984	A	RTL	-55	125		4.0	15	4	.45	.82		25		.40		41,51	240
R-S,TYPE D	MOTA	MC913	F	RTL	-55	125		3.0	12		.45	.75	.05	* 100		.30	.80	A	240
R-S,TYPE D	SPRG	US-0713	F	RTL	-55	125		3.0	15					* 120				57,62	
R-S,TYPE D	TRAN	TFF3512	B	TTL	0	75		5.0	150	15	1.20	1.80	.80		50	.40	3.00	47,H	283
R-S,TYPE D	TRAN	TFF3514	B	TTL	0	75		5.0	150	7	1.20	1.80	.80		50	.40	3.00	47,H	283
R-S,2 INPUT NAND	NSC	NB1018	A	RTL	-55	125		3.0	36	12	.69	.77		20		.15		2	242
R-S,2 INPUT NAND	NSC	NB2018	A	RTL	0	100		3.0	36	12	.69	.77		20		.15		2	242
R-S,2 INPUT NAND	MOTA	MC352	A	ECL	0	75		-5.2	35	* 25				10		1.60	.70	13,C	241
R-S,2 INPUT NAND	MOTA	MC302	A	ECL	-55	125		-5.2	35	* 25				10		1.60	.70	10,S	241
R-S,2 INPUT NAND	SW	SW302	A	ECL	-55	125		-5.2	35	* 25				12		1.60	.70	19,S	241
R-S,2 INPUT OR	NSC	NB1020	A	RTL	-55	125		3.0	27	11	.69	.77		20		.15		12	243
R-S,2 INPUT OR	NSC	NB2020	A	RTL	0	100		3.0	27	11	.69	.77		20		.15		12	243
R-S,3 INPUT NAND	RAY	RM202	A	DTL	-55	125		6.0	15	10	1.00	1.80		32		.25		FS,21	245
R-S,3 INPUT NAND	SYL	SF13	B	TTL	0	75		5.0	*45	6	1.20	1.80	.80	* 25	20	.40	3.10	G,H	244
R-S,3 INPUT NAND	SYL	SF10	B	TTL	-55	125		5.0	*45	15	1.20	1.70	.80	* 25	20	.40	3.20	G,H	244
R-S,3 INPUT NAND	SYL	SF12	B	TTL	0	75		5.0	*45	12	1.20	1.80	.80	* 25	20	.40	3.10	G,H	244
R-S,3 INPUT NAND	SYL	SF11	B	TTL	0	75		5.0	*45	7	1.20	1.70	.80	* 25	20	.40	3.20	G,H	244
R-S,3 INPUT NAND	WMED	WM202	A	DTL	-55	125		6.0	15	10	1.00	1.80		32		.25		21,FS	245
R-S,3 INPUT NAND	WMED	WC202	A	DTL	0	75		6.0	8	6	1.00	1.80		30		.45		21,F	245
R-S,3 INPUT NAND EX	RAY	RM212	A	DTL	-55	125		6.0	15	10	1.00	1.80		32		.25		F,21	245
R-S,3 INPUT NAND EX	WMED	WM212	A	DTL	-55	125		6.0	15	10	1.00	1.80		32		.25		21,FS	245
R-S,3 INPUT NAND EX	WMED	WC212	A	DTL	0	75		6.0	8	6	1.00	1.80		30		.45		21,F	245
R-S,4 INPUT NAND EX	RAD	RD308	C	DTL	-55	125		5.0		4				8		.40	4.00	F	245
R-S,4 INPUT NAND EX	RAD	RD508	C	DTL	0	75		5.0		7				8		.40	4.00	F	245
R-S,4 INPUT NAND EX	RAD	RD208	C	DTL	-55	125		5.0		8				8		.40	4.00	F	245
REGULATOR,-1.15 VDC	MOTA	MC354	A	ECL	0	75		-5.2	18	* 25								13,C	246
REGULATOR,-1.15 VDC	MOTA	MC304	A	ECL	-55	125		-5.2	*24	* 25								10,S	246
REGULATOR,-1.15 VDC	SW	SW304	A	ECL	-55	125		-5.2	18	* 25								19,S	246
REGULATOR,-12.0 VDC	GI	PC503	H		-55	125		- 16.0	*05									93	260K
REGULATOR,-12.0 VDC	GI	NCPC513	H		-55	125		- 16.0	*05									18,90	261
REGULATOR,-24.0 VDC	GI	PC514	H		-55	125		- 28.0	*05									90	261K
REGULATOR,-24.0 VDC	GI	PC504	H		-55	125		- 28.0	*05									93	260K
REGULATOR,-6.0 VDC	GI	PC523	H		-55	125		- 10.0	*05									93	262K

CIRCUIT DESCRIPTION	MFR	MFRS PART NUMBER	TECH	TYPE OF LOGIC	OPER TEMP CENTGRDE MIN	OPER TEMP CENTGRDE MAX	SUPPLY VOLTAGE VDC NO. 2	SUPPLY VOLTAGE VDC NO. 1	PWR DIS MW	FAN-OUT	INPUT THRESHOLD VOLTS ZERO	INPUT THRESHOLD VOLTS ONE	NOISE IMMUNITY VOLTS	DELAY NANOSECS	OPERATING SPEED MHZ	OUTPUT LEVEL ZERO	OUTPUT LEVEL ONE	PACKAGE TYPE	SCHEMATIC NO.
REGULATOR,12.0 VDC	GI	PC501	H		-55	125		16.0	*D5									93	260
REGULATOR,12.0 VDC	GI	NCPC511	H		-55	125		16.0	*D5									18,90	261K
REGULATOR,24.0 VDC	GI	PC502	H		-55	125		28.0	*D5									93	260
REGULATOR,24.0 VDC	GI	PC512	H		-55	125		28.0	*D5									90	261
REGULATOR,5.0 VDC	GI	NCS675A	H		-55	125		11.0	*D5									93	
REGULATOR,6.0 VDC	GI	PC521	H		-55	125		10.0	*D5									93	262
RS,TYPE D	TRAN	TFF3511	B	TTL	-55	125		5.0		15	1.20	1.80	.80		50	.40	3.00		
RS,TYPE D	TRAN	TFF3513	B	TTL	-55	125		5.0		7	1.20	1.80	.80		50	.40	3.00		
SCHMITT TRIGGER	INTX	STXXXXX	L	TRL	-55	125		* 12.0	135	2		3.50		25	1.50			78	247
SCHMITT TRIGGER	GI	NCPC17	H	DTL	-55	125	12.0	4.2	*D2	9,8		1.20		25	5	.30	5.00	0,90	248
SHIFT REGISTER,R-S	TI	SN735	A	RTL	-55	125		3.0	15	3				70				58	
STEERING GATE,DUAL	GI	NCPC9	H		-55	125	12.0	4.2		* 5		3.80			20	.30	5.00	90,0	253
SWITCH ANALOG 4 CHANNEL	PHIL	PL4S01	K	MOS	-55	125	-15.0	-30.0	150		2.00	8.80		500				C,77	256
SWITCH,ANALOG 1 INPUT	GI	PC401	H	DTL	-55	125	45.0	28.0						50	# .20			90	254
SWITCH,ANALOG 2 INPUT	GI	PC402	H	DTL	-55	125	45.0	28.0						50	# .20			90	255
SWITCH,DUAL ANALOG	GESP	4JPA358	A		-55	125	6.0	-3.0	*52					1250					292
SWITCH,DUAL ANALOG	GESP	4JPA345	A		-55	125	6.0	-3.0	*43					1000					292
VOLTAGE REGULATOR	NSC	LM100	A		-55	125		* 40.0	500									2	335
2J-2K,CLOCKED	TRAN	TNG3168	B	TTL	0	75		5.0	75	7	1.20	1.80	1.00	16	30	.40	3.10	H,47*	
2J-2K,CLOCKED	TRAN	TNG3167	B	TTL	-55	125		5.0	75	7	1.20	1.70	1.00	16	30	.40	3.20	H,47*	
2J-2K,CLOCKED	TRAN	TNG3165	B	TTL	-55	125		5.0	75	15	1.20	1.70	1.00	16	30	.40	3.20	H,47*	
2J-2K,CLOCKED	TRAN	TNG3166	B	TTL	0	75		5.0	75	15	1.20	1.80	1.00	16	30	.40	3.10	H,47*	
3J-3K CLOCKED OR DIRECT	TRAN	TFF3163	B	TTL	-55	125		5.0	75	7	1.20	1.70	1.00	16	30	.40	3.20	H,47*	282
3J-3K CLOCKED OR DIRECT	TRAN	TFF3164	B	TTL	0	75		5.0	75	7	1.20	1.80	1.00	16	30	.40	3.10	H,47*	282
3J-3K CLOCKED OR DIRECT	TRAN	TFF3161	B	TTL	-55	125		5.0	75	15	1.20	1.70	1.00	16	30	.40	3.20	H,47*	282
3J-3K CLOCKED OR DIRECT	TRAN	TFF3162	B	TTL	0	75		5.0	75	15	1.20	1.80	1.00	16	30	.40	3.10	H,47*	282
3J-3K,DUAL CLOCKED	TRAN	TFF3181	B	TTL	-55	125		5.0	75	15	1.20	1.70	1.00	16	30	.40	3.20	97,47	282
3J-3K,DUAL CLOCKED	TRAN	TFF3182	B	TTL	0	75		5.0	75	15	1.20	1.80	1.00	16	30	.40	3.10	97,47	282
3J-3K,DUAL CLOCKED	TRAN	TFF3183	B	TTL	-55	125		5.0	75	7	1.20	1.70	1.00	16	30	.40	3.20	97,47	282
3J-3K,DUAL CLOCKED	TRAN	TFF3184	B	TTL	0	75		5.0	75	7	1.20	1.80	1.00	16	30	.40	3.10	97,47	282

LINEAR CIRCUITS

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AMEL	T2107B	4	7
AMEL	T2108B	4	11
AMEL	T2109B	4	10
AMEL	T2110B	4	9
AMEL	T2114B	4	8
AMEL	T2404B	1	6
AMEL	T2405B	1	3
AMEL	T800B	1	5
AMEL	T800D	1	8
AMEL	T801B	1	9
AMEL	T801D	1	13
AMEL	T805B	1	12
AMEL	T805C	1	7
AMEL	T806B	1	4
AMEL	T806C	1	11
AMEL	T807B	1	10
AMEL	T831A	1	32
AMEL	T831B	1	34
AMEL	T831C	1	33
AMEL	T831D	1	35
AMEL	T901B	1	45
AMEL	T901C	1	44
AMEL	T903B	1	43
AMEL	T903C	1	42
FSC	TA702	2	9
FSC	TA702A	2	11
FSC	TA702C	2	10
FSC	TA709	2	13
FSC	TA709C	2	15
FSC	TA710	2	14
FSC	TA710C	2	12
FSC	TA711	3	28
FSC	TA711C	3	29
GELM	T473104	4	14
GELM	T7736078	4	12
GELM	T7736134	4	13
GELM	T7739750	4	6
GESP	T12X2071	1	46
GESP	T12X2072	1	47
GESP	T12X218	3	42
GESP	T4JPA107	2	16
GESP	T4JPA112	3	43
GESP	T4JPA113	2	7
GESP	T4JPA114	2	5
GESP	T4JPA126	2	6
GESP	T4JPA135	2	17
GI	TNCPC101	3	44
GI	TPC200	2	23

MFR	MFRS PART NUMBER	PAGE NO.	LINE NO.
GI	TPC201	2	18
GI	TPC210	2	20
GI	TPC212	2	19
GI	TPC250	2	22
GI	TPC251	2	21
MOTA	TMC1519A	2	28
MOTA	TMC1519B	2	24
MOTA	TMC1524	2	8
MOTA	TMC1525	2	27
MOTA	TMC1526	2	26
MOTA	TMC1527	2	29
MOTA	TMC1528	2	25
MOTA	TMC1530	2	30
MOTA	TMC1531	2	31
NORD	TNM1003	3	39
NORD	TNM1005	2	35
NORD	TNM1008	3	40
NORD	TNM2002	2	34
NORD	TNM2007	2	33
NORD	TNM2012	2	32
PHIL	TPA702	2	37
PHIL	TPA710	2	36
PHIL	TPA712	2	38
PHIL	TPA713	3	45
PHIL	TPA713	3	32
PHIL	TPA7600	4	1
PHIL	TPA7601	3	34
PHIL	TPA7602	1	41
PHIL	TPA7709	1	14
PHIL	TPA7711	1	36
RAD	TCA339	1	15
RAD	TRA238	1	18
RAD	TRA239	1	17
RAD	TRA240	1	22
RAD	TRA338	1	19
RAD	TRA340	1	21
RAD	TRA538	1	20
RAD	TRA539	1	16
RAD	TRA540	1	23
RCA	TCA3000	2	40
RCA	TCA3001	2	39
RCA	TCA3002	2	41
RCA	TCA3004	2	45
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RCA	TCA3006	2	43
RCA	TCA3007	2	42
RCA	TCA3008	2	46
RCA	TCA3010	2	47

MFR	MFRS PART NUMBER	PAGE NO.	LINE NO.
RCA	TCA3011	1	25
RCA	TCA3012	1	26
RCA	TCA3013	1	27
RCA	TCA3014	1	28
RCA	TCA3015	1	37
RCA	TCA3016	1	38
RCA	TCA3020	2	4
RCA	TCA3021	4	4
RCA	TCA3022	4	2
RCA	TCA3023	4	3
RCA	TCA3028	1	24
RCA	TCA3029	1	39
RCA	TCA3030	1	40
RCA	TCA3031	1	2
RCA	TCA3032	1	1
SIGN	TSE500	3	35
SIGN	TSE501	3	46
SIGN	TSE505	3	2
SIGN	TSE506	2	48
SIGN	TSE518	3	1
SPER	T203	3	3
SYL	TSA10	3	37
SYL	TSA11	3	36
SYL	TSA20	4	5
TI	TSNX1312	3	27
TI	TSN521	3	16
TI	TSN522	3	17
TI	TSN523	3	4
TI	TSN5231L	3	11
TI	TSN524	3	18
TI	TSN525	3	14
TI	TSN526	3	15
TI	TSN52702	3	9
TI	TSN52709	3	10
TI	TSN52710	3	6
TI	TSN52711	3	31
TI	TSN5500	3	38
TI	TSN5510	3	13
TI	TSN723	3	7
TI	TSN7231L	3	12
TI	TSN72709	3	8
TI	TSN72710	3	5
TI	TSN72711	3	30
TI	TSN7500	1	31
TI	TSN7501	1	29
TI	TSN7502	1	30
TI	TSN7510	3	47
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WMED	TWC183	2	3
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WMED	TWM169	3	41
WMED	TWS107	2	1
WMED	TWS112	3	48
WMED	TWS115	3	23
WMED	TWS123	3	20
WMED	TWS141	3	19
WMED	TWS142	3	22
WMED	TWS143	3	21
WMED	TWS144	3	24
WMED	TWS161	3	26
WMED	TWS167	4	16
WMED	TWS174	3	25
WMED	TWS934	4	15

CIRCUIT DESCRIPTION	MFR	MFRS PART NUMBER	T E C H	OPER TEMP CENT MIN	OPER TEMP CENT MAX	SUPPLY VOLTAGE VDC NO. 2	SUPPLY VOLTAGE VDC NO. 1	SUPLY POWER MILI-WATTS	IMPEDANCE IN-PUT KOHM	IMPEDANCE OUT-PUT OHMS	GAIN VOLT-AGE V/V	GAIN POW-ER DB	3 DB B.W. MHZ	N.F. DB	COM. MODE REJ. DB	DIFF OFF-SET MV	H.D. % MAX	OUTPUT SWING P-P VOLTS	SIG. POWER MILI-WATTS	PACK-AGE TYPE	SCHE-MATIC NO.
AMP DIFF HIGH GAIN	RCA	CA3032	A	0	70	-6.0	12.0	90	20.0	200	P3100		7.0		80	* 10		*10.0		A	572
AMP DIFF HIGH GAIN	RCA	CA3031	A	-55	125	-6.0	12.0	85	25.0	130	P3100		7.0		85	* 5		*10.0		A	572
AMP OPERATIONAL	AMEL	2405B	A			-30.0	30.0		1000	500		100				3		50.0		30	576
AMP OPERATIONAL	AMEL	806B	A	-55	125	-12.0	12.0		1000	150		94				3		20.0		B	576
AMP OPERATIONAL	AMEL	800B	A	-40	125	-12.0	12.0		1000	400		86				5		20.0		B ,	506
AMP OPERATIONAL	AMEL	2404B	A			-15.0	15.0		1000	500		100				3		22.0		30	576
AMP OPERATIONAL	AMEL	805C	A	0	100	-15.0	15.0		1000	150		94				3		26.0		B	576
AMP OPERATIONAL	AMEL	800D	A	-55	125	-12.0	12.0		500	400		86				10		18.0		K	506
AMP OPERATIONAL	AMEL	801B	A	-40	125	-12.0	12.0		1000	400		86				5		20.0		K	506
AMP OPERATIONAL	AMEL	807B	A	-55	125	-15.0	15.0		1000	150		94				1		26.0		B	576
AMP OPERATIONAL	AMEL	806C	A	0	100	-12.0	12.0		1000	150		94				3		20.0		B	576
AMP OPERATIONAL	AMEL	805B	A	-55	125	-15.0	15.0		1000	150		94				3		26.0		B	576
AMP OPERATIONAL	AMEL	801D	A	-55	125	-12.0	12.0		500	400		86				10		18.0		B	506
AMP OPERATIONAL	PHIL	PA7709	A	-55	125	-15.0	15.0	165	400	150	45000					1		28.0		A	552
AMP,DIFF BROAD BAND	RAD	CA339	T	-55	125	-15.0	25.0	160	10	500	1000				70	7		18.0		F	563
AMP,DIFF BROAD BAND	RAD	RA539	T	0	75	-15.0	25.0	160	10	500	1000				70	7		18.0		F	563
AMP,DIFF BROAD BAND	RAD	RA239	T	-55	125	-15.0	25.0	160	25	150	2700	70	.2		70	2		21.0		F	563
AMP,DIFF GEN PURPOSE	RAD	RA238	T	-55	125	-15.0	25.0	90	70	250	2700	70	E .6		70	2		21.0		F	563
AMP,DIFF GEN PURPOSE	RAD	RA338	T	-55	125	-15.0	25.0	90	30	500	1000				70	7		18.0		F	563
AMP,DIFF GEN PURPOSE	RAD	RA538	T	0	75	-15.0	25.0	90	30	500	1000				70	7		18.0		F	563
AMP,DIFF HIGH GAIN	RAD	RA340	T	-55	125	-15.0	25.0	90	60	2000	10000				70	7		11.0		F	564
AMP,DIFF HIGH GAIN	RAD	RA240	T	-55	125	-15.0	25.0	90	150	1000	33000	90	D .4		70	2		10.0		F	564
AMP,DIFF HIGH GAIN	RAD	RA540	T	0	75	-15.0	25.0	90	60	2000	10000				70	7		11.0		F	564
AMP,DIFF RF-IF	RCA	CA3028	A	-55	125		9.0	56				P32	D2.0	6.7						A	570
AMP,DIFF WIDE BAND	RCA	CA3011	A	-55	125		7.5	120	3.0	B 31	P3100		20.0	8.7						11	566
AMP,DIFF WIDE BAND	RCA	CA3012	A	-55	125		7.5	120	3.0	B 31	P3100		20.0	8.7						11	566
AMP,DIFF WIDE BAND	RCA	CA3013	A	-55	125		7.5	120	3.0	B 31	P3100		20.0	8.7			1.8			11	568
AMP,DIFF WIDE BAND	RCA	CA3014	A	-55	125		7.5	120	3.0	B 31	P3100		20.0	8.7			1.8			11	568
AMP,SENSE-FLIP FLOP	TI	SN7501	A	0	70	-5.0	5.0	70												F,T	583
AMP,SENSE-ONE SHOT	TI	SN7502	A	0	70	-5.0	5.0	70												F,T	582
AMP,SENSE-ONE SHOT	TI	SN7500	A	0	70	-5.0	5.0	70												F,T	535
AMPLIFIER DIFF	AMEL	831A	A	-55	125	-12.0	12.0		40	5000		66				3		12.0		K,38	507
AMPLIFIER DIFF	AMEL	831C	A	-25	85	-12.0	12.0		20	5500		64				20		10.0		K,38	507
AMPLIFIER DIFF	AMEL	831B	A	-55	125	-12.0	12.0		20	5500		66				8		12.0		K,38	507
AMPLIFIER DIFF	AMEL	831D	A	0	70	-12.0	12.0		20	6000		64				10		12.0		K	507
AMPLIFIER DIFF	PHIL	PA7711	A	-55	125	- 6.0	12.0	130		200	1500									B	554
AMPLIFIER DIFF	RCA	CA3015	A	-55	125	12.0	12.0	175	7.8	92	P3100		3.2		103	* 5		14.0		25	521
AMPLIFIER DIFF	RCA	CA3016	A	-55	125	12.0	12.0	175	7.8	92	P3100		3.2		103	* 5		14.0		81	521
AMPLIFIER DIFF	RCA	CA3029	A	0	70	-6.0	6.0	30	14.0	200	P1000		3.0		94	* 5		7.0		H	521
AMPLIFIER DIFF	RCA	CA3030	A	0	70	-12.0	12.0	175	7.8	92	P3100		3.2		103	* 5		14.0		H	521
AMPLIFIER EMIT COUP	PHIL	PA7602	A	-55	125		*12.0	200	25	50		76			90	5		6.0		69,B	585
AMPLIFIER RF/IF	AMEL	903C	A	0	70	-6.0	12.0					15						8.0		11	537
AMPLIFIER RF/IF	AMEL	903B	A	-55	125	-6.0	12.0					15						8.0		11	537
AMPLIFIER VIDEO	AMEL	901C	A	0	70	-12.0	12.0		550	500		24				260		14.0		A	538
AMPLIFIER VIDEO	AMEL	901B	A	-55	125	-12.0	12.0		550	500		24				260		14.0		A	538
AMPLIFIER,AUDIO	GESP	12X2071	M	-55	125	25.0	25.0		# 10	*700	* 850		E .4					16.8		15	501
AMPLIFIER,AUDIO	GESP	12X2072	M	-55	125	25.0	25.0		# 10	D*18	* 700		E .4					12.6		15	501
AMPLIFIER,AUDIO	VARO	8502	E	-55	85		20.0	100	# 10	1000	200		.2							72	502

CIRCUIT DESCRIPTION	MFR	MFRS PART NUMBER	EC H	OPER TEMP CENT MIN	OPER TEMP CENT MAX	SUPPLY VOLTAGE VDC NO. 2	SUPPLY VOLTAGE VDC NO. 1	SUPLY POWER MILI-WATTS	IMPEDANCE IN-PUT KOHM	IMPEDANCE OUT-PUT OHMS	GAIN VOLT-AGE V/V	GAIN POW-ER DB	3 DB B.W. MHZ	N.F. DB	COM. MODE REJ. DB	DIFF OFF-SET MV	H.D. % MAX	OUTPUT SWING P-P VOLTS	SIG. POWER MILI-WATTS	PACK-AGE TYPE	SCHE-MATIC NO.
AMPLIFIER,AUDIO	WMED	WS107	A	-55	125				250		2000		E .5				3.0		5000		
AMPLIFIER,AUDIO	WMED	WM1108	A	-55	125		12.0		B 10		20		.1				3.0	5.0		S	503
AMPLIFIER,AUDIO	WMED	WC183	A	-55	75		1.5	135	40		400	C1.2					8.0		# 3	21,F	556
AMPLIFIER,AUDIO PWR	RCA	CA3020	A	-55	150		6.0	84	40.0			58					1.0		300	25	565
AMPLIFIER,AUDIO VF	GESP	4JPA114	F				6.0	75	.5	2000	B* 24		#1.0						45	N	504I
AMPLIFIER,AUDIO VF	GESP	4JPA126	F				6.0	150	.5	1000	B* 24		#1.0						90	N	504
AMPLIFIER,AUDIO VF	GESP	4JPA113	A	-55	125		9.0	180	E 5	B 20		31	2.0				T1.5		50	R	504H
AMPLIFIER,AUDIO VF	MOTA	MC1524	A	-55	125	6.0	-6.0	18	8.6	E5.8	11.6	* 17	.8				3.0		1000	10	505
AMPLIFIER,DIFF	FSC	A702	A	-55	125	12.0	-6.0	70	25	200	2600		1.1		80	5		10.6		A,S	515
AMPLIFIER,DIFF	FSC	A702C	A	-25	100	12.0	-6.0	80	20	200	2300		1.1		80	15		10.6		A,S	515
AMPLIFIER,DIFF	FSC	A702A	A	-55	125	12.0	-6.0	70	25	200	2600		.8		80	5		10.6		A,S	515
AMPLIFIER,DIFF	FSC	A710C	A	0	70	12.0	-6.0	110		200	1200		20.0			8				A,S	553
AMPLIFIER,DIFF	FSC	A709	A	-55	125	15.0	15.0	80	400	150	45000		* .4		90	5		#20.0		A	552
AMPLIFIER,DIFF	FSC	A710	A	-55	125	12.0	-6.0	110		200	1500		20.0			5				A,S	553
AMPLIFIER,DIFF	FSC	A709C	A	0	70	15.0	15.0	80	250	150	45000		* .4		90	8		#20.0		A	552
AMPLIFIER,DIFF	GESP	4JPA107	A	0	125	12.0	12.0	120	750	100	3500		E1.0		100	8		#20.0		R	560
AMPLIFIER,DIFF	GESP	4JPA135	A	0	125	6.0	-6.0	30	1000	100	2000		E1.4		80	8		# 8.0		R	560
AMPLIFIER,DIFF	GI	PC201	H	-55	125	12.0	12.0		200	200	B#P 2		E .2		100	5		8.0		85	509
AMPLIFIER,DIFF	GI	PC212	K	-55	125	12.0	12.0	90	100	50	P1600		1.2		80	3		12.0		93	551
AMPLIFIER,DIFF	GI	PC210	K	-55	125	18.0	18.0	200	90	50	P3200		1.5		80	3		14.0		93	551
AMPLIFIER,DIFF	GI	PC251	K	-55	85	12.0	12.0		M 10		320		E .3		42	50				83	
AMPLIFIER,DIFF	GI	PC250	K	-55	85	12.0	12.0		M 10		320		E .3		42	50				83	
AMPLIFIER,DIFF	GI	PC200	H	-55	125	12.0	12.0	65	100	200	4500		E .2		80	5		*21.0		90	508
AMPLIFIER,DIFF	MOTA	MC1519B	J	-55	125	12.0	12.0	*300	1.2	P48	160		8.0		86	6		10.0		10	510
AMPLIFIER,DIFF	MOTA	MC1528	J	-55	125	12.0	12.0	*300	80	B*I1	65		.9		# 80	7		# 7.0		10	512
AMPLIFIER,DIFF	MOTA	MC1526	J	-55	125	12.0	12.0	*300	60	B*I1	65		.5		# 80	7		# 7.0		10	512Z
AMPLIFIER,DIFF	MOTA	MC1525	J	-55	125	12.0	12.0	*300	2	B*I1	140		1.4		# 80	5		# 7.0		10	511Z
AMPLIFIER,DIFF	MOTA	MC1519A	J	-55	125	12.0	12.0	*300	2.6	DP27	4500		1.0		89	6		14.0		10	510
AMPLIFIER,DIFF	MOTA	MC1527	J	-55	125	12.0	12.0	*300	2	B*I1	140		1.4		# 80	5		# 7.0		10	511
AMPLIFIER,DIFF	MOTA	MC1530	A	-55	125	6.0	-6.0	110	20	25	5000		1.2		75	5		10.4		13	513P
AMPLIFIER,DIFF	MOTA	MC1531	A	-55	125	6.0	-6.0	110	2000	25	3500		.4		75	10		10.4		13	513
AMPLIFIER,DIFF	NORD	NM2012	F	-55	125		13.0	26			300		*1.0			5					550
AMPLIFIER,DIFF	NORD	NM2007	F	-55	125		13.0	26			300		*1.0			20					550
AMPLIFIER,DIFF	NORD	NM2002	F	-55	125		13.0	26			300		*1.0			10					550
AMPLIFIER,DIFF	NORD	NM1005	F	-55	125	12.0	-6.0	162	3.2		18				70	4		16.0			549
AMPLIFIER,DIFF	PHIL	PA710	A	-55	125	12.0	-6.0	110		200	1500					5				A,69	553
AMPLIFIER,DIFF	PHIL	PA702	A	0	70	12.0	-6.0	80	20	200	2300		1.1		80	7		10.6		A,69	516
AMPLIFIER,DIFF	PHIL	PA712		-55	125	6.0	-3.0	17	40	300	700		.8		80	5		5.4		A,69	515
AMPLIFIER,DIFF	RCA	CA3001	A	-55	125	6.0	-6.0	80	50	70	P 80		16.0	5	70	T1.5		5.0		25	517
AMPLIFIER,DIFF	RCA	CA3000	A	-55	125	6.0	-6.0	30	P195	BP 8	P 40		.6		98	8	5.0	6.4		11	516
AMPLIFIER,DIFF	RCA	CA3002	A	-55	125	6.0	-6.0	55	100	70	P 160		11.0	4		T1.2		5.5		11	518
AMPLIFIER,DIFF	RCA	CA3007	A	-55	125	6.0	-6.0	30	4	60		22			77	5	E2.8			25	520
AMPLIFIER,DIFF	RCA	CA3006	A	-55	125	6.0	-6.0	26				# 14	D1.0 *	9	101	1				25	519R
AMPLIFIER,DIFF	RCA	CA3005	A	-55	125	6.0	-6.0	26				# 14	D1.0 *	9	101	5				25	519R
AMPLIFIER,DIFF	RCA	CA3004	A	-55	125	6.0	-6.0	26				# 10	D1.0		98	5				25	519
AMPLIFIER,DIFF	RCA	CA3008	A	-55	125	6.0	-6.0	30	14	200	1000		.3		94	5		6.7		25	521
AMPLIFIER,DIFF	RCA	CA3010	A	-55	125	6.0	-6.0	30	14	200	1000		.3		94	5		6.7		82	521
AMPLIFIER,DIFF	SIGN	SE506	A			15.0	15.0	160	200		17000		.3		100	5		22.0	0	S,B	562

CIRCUIT DESCRIPTION	MFR	MFRS PART NUMBER	T E C H	OPER TEMP CENT MIN	OPER TEMP CENT MAX	SUPPLY VOLTAGE VDC NO. 2	SUPPLY VOLTAGE VDC NO. 1	SUPLY POWER MILI-WATTS	IMPEDANCE IN-PUT KOHM	IMPEDANCE OUT-PUT OHMS	GAIN VOLT-AGE V/V	GAIN POW-ER DB	3 DB B.W. MHZ	N.F. DB	COM. MODE REJ. DB	DIFF OFF-SET MV	H.D. % MAX	OUTPUT SWING P-P VOLTS	SIG. POWER MILI-WATTS	PACK-AGE TYPE	SCHE-MATIC NO.
AMPLIFIER,DIFF	SIGN	SE518	A			4.0	-2.0	70	2		500		8.0			5				S,B	561
AMPLIFIER,DIFF	SIGN	SE505	A	-55	125	4.0	-3.0	25	4		1800		1.0		100	4		4.3		S,B	522
AMPLIFIER,DIFF	SPER	203	B	-55	125		18.0	*150	150	100	150		.8		80	7		6.5		A,S	523
AMPLIFIER,DIFF	TI	SN523	F	-55	125	12.0	12.0	90	10		4500		.1		90	12		26.0		F	526
AMPLIFIER,DIFF	TI	SN72710	A	0	70	-6.0	12.0	110		200	1200					* 10				A,T	553
AMPLIFIER,DIFF	TI	SN52710	B	-55	125	-6.0	12.0	110		200	1500					* 6				A,T	553
AMPLIFIER,DIFF	TI	SN723	A	0	70	-12.0	12.0	100	10	250	3000		1.5		80	* 15		* 2.0		F	580
AMPLIFIER,DIFF	TI	SN72709	A	0	70	-12.0	*12.0	200	250	150	45000				90	* 10		28.0		A,T	552
AMPLIFIER,DIFF	TI	SN52702	B	-55	125	-6.0	12.0	70	25	200	2600				80	* 6		11.0		A,T	515
AMPLIFIER,DIFF	TI	SN52709	B	-55	125	-12.0	*12.0	165	400	150	45000				90	* 6		28.0		A,T	552
AMPLIFIER,DIFF	TI	SN5231L	B	-55	125	-15.0	15.0	100	15	200	4000		1.8		90	12		24.0		B	584
AMPLIFIER,DIFF	TI	SN7231L	A	0	70	-15.0	15.0	100	10	250	3000		1.5		80	15		20.0		B	584
AMPLIFIER,DIFF	TI	SN5510	F	-55	125	6.0	-6.0	165	3.5	50	200		40.0		60	3		4.0		T	528
AMPLIFIER,DIFF	TI	SN525	F	-55	125	12.0	12.0	100	80	B 10	50000		.1		100	T 1		34.0		F	
AMPLIFIER,DIFF	TI	SN526	F	-55	125	12.0	12.0	100	2000	B 12	2400		.1		80	T 3		34.0		F	
AMPLIFIER,DIFF	TI	SN521	F	-20	85	A 6.0	-9.0	28	12	B 10	1250		E .5		60	DS20		# .5		T	524
AMPLIFIER,DIFF	TI	SN522	F	-20	85	A 6.0	-9.0	72	12	160	1250		E .5		60	DS20		# .5		T	525
AMPLIFIER,DIFF	TI	SN524	F	-55	125	12.0	12.0	120	2000		1250	62	.1			T 12		15.0		T	527
AMPLIFIER,DIFF	WMED	WS141	A	-55	125	6.0	12.0	* 65	# 50		# 150		E#.5		80	10		#17.5		F	531N
AMPLIFIER,DIFF	WMED	WS123	A	-55	125	12.0	-6.0	67	#150	*500	# 250		# .1		90	2		14.0		F	530
AMPLIFIER,DIFF	WMED	WS143	A	-55	125	D 6.0	12.0	* 72	# 10		#1000		E#.5		80	10		#17.5		F	531
AMPLIFIER,DIFF	WMED	WS142	A	-55	125	6.0	12.0	*232	# 20		# 150		# .1		80	15		17.5		F	531N
AMPLIFIER,DIFF	WMED	WS115	A	-55	125	12.0	-6.0	26	#300	8000	# 50		.2		80	7		13.0		F	529
AMPLIFIER,DIFF	WMED	WS144	A	-55	125	D 6.0	12.0	*267	* 2		#1500		# .1		80	1	5.0	#17.5		F	531
AMPLIFIER,DIFF	WMED	WS174	A	-55	125	12.0	12.0	375	#100		50000		.5		# 60			*22.0		S	555
AMPLIFIER,DIFF	WMED	WS161		-55	125	12.0	12.0		300		2000		.5		83	10		#14.0		S	532
AMPLIFIER,DIFF TSS	TI	SNX1312	B	-25	100	-12.0	*12.0	250	100	45K	800		.5		80	* 5		2.0		19	579
AMPLIFIER,DUAL DIFF	FSC	A711	A	-55	125	12.0	-6.0	65		200	1500		20.0			5				B	554
AMPLIFIER,DUAL DIFF	FSC	A711C	A	0	70	12.0	-6.0	65		200	1500		20.0			8				B	554
AMPLIFIER,DUAL DIFF	TI	SN72711	A	0	70	-6.0	12.0	230		200	1500					* 6				B	554
AMPLIFIER,DUAL DIFF	TI	SN52711	B	-55	125	-6.0	*12.0	200		200	1500					* 6				B	554
AMPLIFIER,RF-IF	PHIL	PA713		-55	125		6.0	21				11	D2.0	10						B,69	534
AMPLIFIER,RF-IF	WMED	WM1146	A	-55	125		12.0	48	A 82	1900		23	40.0	4				4.0		S	557
AMPLIFIER,RF-IF 90MC	PHIL	PA7601	A	-55	100	6.0	-6.0	180	A250	315		18	D1.0						1	B	559
AMPLIFIER,SENSE	SIGN	SE500	A	-55	100		13.0				30		3.0			T2				S,B	533
AMPLIFIER,SENSE	SYL	SA11	A	-55	125	B-12	25.0	125												G	571
AMPLIFIER,SENSE	SYL	SA10	A	-55	125	B-12	25.0	125	.2						2V					G	571
AMPLIFIER,SENSE	TI	SN5500	F	-55	125	4.5	-4.5	*200	* .3							4				T	535
AMPLIFIER,SERVO	NORD	NM1003	R	-55	100		30.0	6000	10	500	500								8000	89	548
AMPLIFIER,SERVO	NORD	NM1008	R	-55	100		30.0	6000	10	300	200								8000	89	548
AMPLIFIER,SERVO	WMED	WM169					28.0		# 10											09	
AMPLIFIER,UNITY GAIN	GESP	12X218	M	-25	125		25.0		#A10	D#15	E#9.9		.5							92	
AMPLIFIER,VIDEO	GESP	4JPA112	M				15.0	400	A 20	500	500	20						1.0		R	539
AMPLIFIER,VIDEO	GI	NCPC101	H	-55	125		6.0		E 12	500	100		20.0					4.5		0,90	540
AMPLIFIER,VIDEO	PHIL	PA713		-55	125		6.0	21			7		55.0							B,69	534
AMPLIFIER,VIDEO	SIGN	SE501	A	-55	125		6.0	20	E 13	7.5	20		12.0	4				3.0		S,B	541
AMPLIFIER,VIDEO	TI	SN7510	A	0	70	-6.0	6.0	165	6	35	* 240		40.0		85			5.0		A	581
AMPLIFIER,VIDEO	WMED	WS112	A	-55	125		12.0	60			160		70.0							21,S	542

CIRCUIT DESCRIPTION	MFR	MFRS PART NUMBER	T E C H	OPER TEMP CENT MIN	OPER TEMP CENT MAX	SUPPLY VOLTAGE VDC NO. 2	SUPPLY VOLTAGE VDC NO. 1	SUPLY POWER MILI-WATTS	IMPEDANCE IN-PUT KOHM	IMPEDANCE OUT-PUT OHMS	GAIN VOLT-AGE V/V	GAIN POW-ER DB	3 DB B.W. MHZ	N.F. DB	COM. MODE REJ. DB	DIFF OFF-SET MV	H.D. % MAX	OUTPUT SWING P-P VOLTS	SIG. POWER MILI-WATTS	PACK-AGE TYPE	SCHE-MATIC NO.
AMPLIFIER,VIDEO VF	PHIL	PA7600	A	-55	125		6.0	84				51	18.0						E 25	B	558
AMPLIFIER,WIDE BAND	RCA	CA3022	A	-55	125		6.0	13	1.3	120	P 700		5.0	4.4						25	567
AMPLIFIER,WIDE BAND	RCA	CA3023	A	-55	125		6.0	35	.3	100	P 450		10.0	6.5						25	567
AMPLIFIER,WIDE BAND	RCA	CA3021	A	-55	125		6.0	4	4.0	300	P 630		4.0	4.2						25	567
AMPLIFIER,WIDE BAND	SYL	SA20	A	-55	125		24.0		1.6	2.0	21		80.0	15.0				14.0		J	569
AMPLIFIER,400 CPS	GELM	7739750	M	-55	85	25.0	25.0	150	20	10		24						30.0		86	543
ANALOG SWITCH	AMEL	2107B	A			-12.0	12.0									6		12.0		B	578
ANALOG SWITCH	AMEL	2114B	A			-15.0	15.0									9		18.0		30	
ANALOG SWITCH	AMEL	2110B	A			-18.0	18.0									10		20.0		B	578
ANALOG SWITCH	AMEL	2109B	A			-12.0	12.0									9		17.0		B	578
ANALOG SWITCH	AMEL	2108B	A			-18.0	18.0									7		13.0		B	578
FILTER,30 MCS	GELM	7736078	P	-20	85				.1	100		-3	9.0							86	547
OSCILLATOR,120 MCPS	GELM	7736134	M	-55	85		12.0	66												86	545
OSCILLATOR,16 MCPS	GELM	473104	M	-55	75		12.0	228		300								2.0		87	546
PREAMPLIFIER,READ	WMED	WS934	A	0	60	9.0	-9.0	41	20	100	* 32		1.0							F	544
PREAMPLIFIER,SERVO	WMED	WS167							E2.5	D 39	300		.2								

DIGITAL ARRAYS

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MFR MFRS PART NUMBER PAGE NO. LINE NO.

MFR	MFRS PART NUMBER	PAGE NO.	LINE NO.
AMEL	111A	3	39
AMEL	111B	3	38
AMEL	111C	3	36
AMEL	112A	3	35
AMEL	112B	3	40
AMEL	112C	3	41
AMEL	114A	3	43
AMEL	114B	3	42
AMEL	114C	3	37
AMEL	117A	3	21
AMEL	117B	3	19
AMEL	117C	3	20
AMEL	141A	2	45
AMEL	141B	2	46
AMEL	141C	3	4
AMEL	5551	3	46
AMEL	5552	3	45
FSC	CS709	1	32
FSC	DTL933	1	39
FSC	FL90529	3	28
FSC	FL93329	1	40
FSC	FSA1400	2	33
FSC	FSA2000	2	34
FSC	FSA2001	2	32
FSC	FSA2002	2	9
FSC	FSA2003	2	8
FSC	L905	3	26
FSC	L905C	3	30
FSC	L906	3	27
FSC	L906C	3	29
FSC	MWL908	3	3
GI	MEM1000	1	6
GI	MEM3020	4	2
GI	MEM3021	4	3
GI	MEM507	4	1
GI	MEM508	3	48
GI	MEM509	4	4
ITT	MIC933	1	37
MOTA	MC1116	2	10
MOTA	MC1117	2	11
MOTA	MC1118	2	35
MOTA	MC217	1	33
MOTA	MC267	1	35
MOTA	MC805	3	31
MOTA	MC806	3	34
MOTA	MC833F	1	41
MOTA	MC833G	1	48
MOTA	MC905	3	33
MOTA	MC906	3	32
MOTA	MC908	3	1
MOTA	MC933F	1	42
MOTA	MC933G	2	1
NSC	NB1005	3	24
NSC	NB2005	3	25
NSC	NC1008	2	48
NSC	NC2008	3	6
PHIL	PL4C01	1	18
PHIL	PL4R01	4	5
PHIL	PL4R02	4	6
PHIL	PL5R00	3	13
PHIL	PL5R16	3	14
PHIL	PL5R32	3	11
PHIL	PL5R40	3	12
PHIL	PL5100	3	44
PHIL	PL5208	3	18
PHIL	PL5216	3	15
PHIL	PL5220	3	16
PHIL	PL5232	3	17
PHIL	PL905	3	22
PHIL	PL906	3	23
PHIL	PL908	3	2
PHIL	PL933	1	38
PHIL	PL9605	2	43
PHIL	PL9605	3	9
PHIL	PL975	3	5
PHIL	PL9933	1	36
PHIL	134A	2	47
PHIL	134A	2	44
PHIL	254DD	1	31
RAD	RM10	2	17
RAD	RM10	2	40
RAD	RM12	2	18
RAD	RM12	2	39
RAD	RM13	2	19
RAD	RM14	2	23
RAD	RM17	2	25
RAD	RM19	2	24
RAD	RM30	2	21
RAD	RM30	2	42
RAD	RM31	2	20
RAD	RM31	2	41
RAD	RM34	2	22
RAD	RM50	2	30
RAD	RM53	2	29
RAD	RM56	2	31
RAD	RM59	2	27

MFR	MFRS PART NUMBER	PAGE NO.	LINE NO.
RAD	RM62	2	37
RAD	RM65	2	12
RAD	RM65	2	26
RAD	RM68	2	13
RAD	RM68	2	28
RAD	RM71	2	14
RAD	RM71	2	36
RAD	RM74	2	16
RAD	RM74	2	38
RAD	RM77	2	15
RAY	RM217	1	45
RAY	RM227	2	4
RCA	CA3018	4	15
RCA	CA3019	1	29
SIGN	CS709	1	34
SIGN	CS731	2	2
SIGN	CS732	2	6
SIGN	SE106	1	44
SILX	A04	2	7
SILX	SI933	1	30
SPRG	US-0708	3	8
SW	SW933	1	43
SYL	SM10	1	10
SYL	SM11	1	9
SYL	SM12	1	7
SYL	SM13	1	8
SYL	SM20	1	5
SYL	SM21	1	2
SYL	SM22	1	3
SYL	SM23	1	4
SYL	SM30	1	14
SYL	SM31	1	15
SYL	SM32	1	13
SYL	SM33	1	16
SYL	SM40	1	28
SYL	SM41	1	27
SYL	SM42	1	26
SYL	SM43	1	25
SYL	SM50	1	21
SYL	SM51	1	23
SYL	SM52	1	24
SYL	SM53	1	22
SYL	SM60	4	12
SYL	SM61	4	11
SYL	SM62	4	13
SYL	SM63	4	10
SYL	SM70	4	14
SYL	SM71	4	7
SYL	SM72	4	9
SYL	SM73	4	8
SYL	SM80	3	10
TI	SN5480	1	12
TI	SN729	3	7
TI	SN7480	1	11
TI	SN7483N	1	1
TI	SN7490N	1	17
TI	SN7491N	3	47
TI	SN7492N	1	19
TI	SN7493N	1	20
TRAN	TM 3164	4	16
TRAN	TMC3162	4	17
TRAN	TMC3163	4	18
WMED	WC217	1	47
WMED	WC227	2	5
WMED	WM217	1	46
WMED	WM227	2	3

CIRCUIT DESCRIPTION	MFR	MFRS PART NUMBER	TEC H	TYPE OF LOG- IC	OPER TEMP CENTGRDE MIN	MAX	SUPPLY VOLTAGE VDC NO. 2	NO. 1	PWR DIS MW	FAN-OUT	INPUT THRESHOLD VOLTS ZERO	ONE	NOISE IMMU-NITY VOLTS	DELAY NANO-SECS	OPER-ATING SPEED MHZ	OUTPUT LEVEL ZERO	ONE	PACK-AGE TYPE	SCHE-MATIC NO.
ADDER 4 BIT FULL	TI	SN7483N	A	TTL	0	70		5.0	390	10	.80	2.00	.40			.40	2.40	67	316
ADDER,DEP CARRY	SYL	SM21	A	TTL	-55	125		5.0	125				1.00			.25	3.30	H,G	
ADDER,DEP CARRY	SYL	SM22	A	TTL	0	75		5.0	125				1.00			.25	3.30	H,G	
ADDER,DEP CARRY	SYL	SM23	A	TTL	0	75		5.0	125				1.00			.25	3.30	H,G	
ADDER,DEP.CARRY	SYL	SM20	A	TTL	-55	125		5.0	125				1.00			.25	3.30	H,G	
ADDER,DUAL	GI	MEM1000	K		-55	125	- 12.0	- 26.0	40		9.00	4.80	1.00			10.0	.10	82	
ADDER,FULL	SYL	SM12	A	TTL	0	75		5.0	90				1.00			.25	3.30	H,G	
ADDER,FULL	SYL	SM13	A	TTL	0	75		5.0	90				1.00			.25	3.30	H,G	
ADDER,FULL	SYL	SM11	A	TTL	-55	125		5.0	90				1.00			.25	3.30	H,G	
ADDER,FULL	SYL	SM10	A	TTL	-55	125		5.0	90				1.00			.25	3.30	H,G	
ADDER,FULL	TI	SN7480	A	TTL	0	70		5.0		10	.80	2.00	.40			.40	2.40	F	312
ADDER,FULL	TI	SN5480	B	TTL	-55	125		5.0		10	.80	2.00	.40			.40	2.40	F	312
ADDER,INDEP CARRY	SYL	SM32	A	TTL	0	75		5.0	125				1.00			.25	3.30	H,G	
ADDER,INDEP CARRY	SYL	SM30	A	TTL	-55	125		5.0	125				1.00			.25	3.30	H,G	
ADDER,INDEP CARRY	SYL	SM31	A	TTL	-55	125		5.0	125				1.00			.25	3.30	H,G	
ADDER,INDEP CARRY	SYL	SM33	A	TTL	0	75		5.0	125				1.00			.25	3.30	H,G	
COUNTER,DECADE	TI	SN7490N	A	TTL	0	70		5.0	128	10	.80	2.00	.40	60	18	.40	2.40	H	313
COUNTER,DECADE	PHIL	PL4C01	K	MOS	-55	125	-12.0	-24.0	*75		3.00	9.00	1.00	800	.10	2.00	10.00	88	119
COUNTER,DIVIDE BY 12	TI	SN7492N	A	TTL	0	70		5.0	128	10	.80	2.00	.40	60	18	.40	2.40	H	313
COUNTER,4 BIT	TI	SN7493N	A	TTL	0	70		5.0	128	10	.80	2.00	.40	75	18	.40	2.40	H	313
DECADE DIVIDER	SYL	SM50	A	TTL	-55	125		5.0	120	15			1.00	24	30	.25	3.30	H,G	
DECADE DIVIDER	SYL	SM53	A	TTL	0	75		5.0	120	6			1.00	24	30	.25	3.30	H,G	
DECADE DIVIDER	SYL	SM51	A	TTL	-55	125		5.0	120	6			1.00	24	30	.25	3.30	H,G	
DECADE DIVIDER	SYL	SM52	A	TTL	0	75		5.0	120	15			1.00	24	30	.25	3.30	H,G	
DECODER,CARRY	SYL	SM43	A	TTL	0	75		5.0	25				1.00			.25	3.30	H,G	
DECODER,CARRY	SYL	SM42	A	TTL	0	75		5.0	25				1.00			.25	3.30	H,G	
DECODER,CARRY	SYL	SM41	A	TTL	-55	125		5.0	25				1.00			.25	3.30	H,G	
DECODER,CARRY	SYL	SM40	A	TTL	-55	125		5.0	25				1.00			.25	3.30	H,G	
DIODE ARRAY	RCA	CA3019	A		-55	125		6.0	120									11	333
DIODE ARRAY,DUAL 3 INP	SILX	SI933	A	DTL	-55	125		* 8.0	K30					L 3				38	113
DIODE ARRAY,DUAL 3 INP	PHIL	254DD	A	DTL	-55	125		* 8.0						4				A,U	113F
DIODE ARRAY,DUAL 3 INP	FSC	CS709	A		-55	125		* 8.0	K30					L 3				S,B	113F
DIODE ARRAY,DUAL 3 INP	MOTA	MC217	A	DTL	-55	125		* 8.0	K30					*L 4				13,S	113F
DIODE ARRAY,DUAL 3 INP	SIGN	CS709	A	DTL	-55	125		* 8.0	K30					*L 4				S,B	113F
DIODE ARRAY,DUAL 3 INP	MOTA	MC267	F	DTL	0	75		* 8.0	K30					L 4				13,50	
DIODE ARRAY,DUAL 4 INP	PHIL	PL9933	A	DTL	-55	125		* 8.0	K10					L 4				41	113F
DIODE ARRAY,DUAL 4 INP	ITT	MIC933	A	DTL	-55	125		8.0						L 3				C,E	113
DIODE ARRAY,DUAL 4 INP	PHIL	PL933	A	DTL	-55	125		* 8.0	K10					*L 4				41	
DIODE ARRAY,DUAL 4 INP	FSC	DTL933	A	DTL	-55	125		* 8.0	K10					*L 4				44	
DIODE ARRAY,DUAL 4 INP	FSC	FL93329	A	DTL	0	70		* 8.0	K10					*L 4				44	
DIODE ARRAY,DUAL 4 INP	MOTA	MC833F	A	DTL	0	75		* 8.0	K10									C	113F
DIODE ARRAY,DUAL 4 INP	MOTA	MC933F	A	DTL	-55	125		* 8.0	K10									C	113F
DIODE ARRAY,DUAL 4 INP	SW	SW933	A	DTL	-55	125		* 5.0	K50					L 3				27,C	113F
DIODE ARRAY,DUAL 5 INP	SIGN	SE106	A	DTL	-55	125		* 8.0	K30					*L 4				X	113F
DIODE ARRAY,DUAL3-4 INP	RAY	RM217	A	DTL	-55	125		* 15.0	K30					*L 4				FS,21	113F
DIODE ARRAY,DUAL3-4 INP	WMED	WM217	A	DTL	-55	125		* 15.0	K30					*L 4				21,F	113F
DIODE ARRAY,DUAL3-4 INP	WMED	WC217	A	DTL	0	75		6.0	8	6	1.00	1.80		30		.45		21,F	113F
DIODE ARRAY,DUAL3-4 INP	MOTA	MC833G	A	DTL	0	75		* 8.0	K10									8	113F

CIRCUIT DESCRIPTION	MFR	MFRS PART NUMBER	TEC H	TYPE OF LOG- IC	OPER TEMP CENTGRDE MIN	MAX	SUPPLY VOLTAGE VDC NO. 2	NO. 1	PWR DIS MW	FAN- OUT	INPUT THRESHOLD VOLTS ZERO	ONE	NOISE IMMU- NITY VOLTS	DELAY NANO- SECS	OPER- ATING SPEED MHZ	OUTPUT LEVEL ZERO	ONE	PACK- AGE TYPE	SCHE- MATIC NO.
DIODE ARRAY,DUAL3-4 INP	MOTA	MC933G	A	DTL	-55	125		* 8.0	K10									B	113F
DIODE ARRAY,QUAD 2 INP	SIGN	CS731	A	DTL	-55	125		* 8.0	K30					*L 4				X	113F
DIODE ARRAY,TRIPLE3-3-4	WMED	WM227	A	DTL	-55	125		* 15.0	K30					*L 4				F	113F
DIODE ARRAY,TRIPLE3-3-4	RAY	RM227	A	DTL	-55	125		* 15.0	K30					*L 4				F	113F
DIODE ARRAY,TRIPLE3-3-4	WMED	WC227	A	DTL	0	75		6.0	8	8	1.00	1.80		30		.45		F	113F
DIODE ARRAY,12 INPUT	SIGN	CS732	A	DTL	-55	125		* 8.0	K30					*L 4				X	113F
DIODE ARRAY,6 INPUT	SILX	A04	A	DTL	-55	125		* 6.0	K2					*L 4				20,F	113F
DIODE ARRAY,8 INPUT	FSC	FSA2003	A		-65	175		* 40	*D4					*L 25				S	113F
DIODE ARRAY,8 INPUT	FSC	FSA2002	A		-65	175		* 40	*D4					*L 25				S	113F
DIODE ARRAY,9 INPUT	MOTA	MC1116	F	DTL	-55	125		* 40.0	KD3					L 90				13	113F
DIODE ARRAY,9 INPUT	MOTA	MC1117	F	DTL	-55	125		* 40.0	KD3					L 90				13	
DIODE MATRIX 10X10	RAD	RM65	S		-55	125		* 60.0	450					L 10				96	269
DIODE MATRIX 10X5	RAD	RM68	S		-55	125		* 60.0	450					L 10				96	269
DIODE MATRIX 5X10	RAD	RM71	S		-55	125		* 60.0	450					L 10				96	269
DIODE MATRIX 5X5	RAD	RM77	S		-55	125		* 50.0	450					L 20				F	269
DIODE MATRIX 5X5	RAD	RM74	S		-55	125		* 60.0	450					L 10				F	269
DIODE MATRIX 5X8	RAD	RM10	S		-55	125		* 60.0	450					L 7				F	269
DIODE MATRIX 5X8	RAD	RM12	S		-55	125		* 60.0	450					L 11				F	269
DIODE MATRIX 5X8	RAD	RM13	S		-55	125		* 50.0	450					L 20				F	269
DIODE MATRIX 6X8	RAD	RM31	S		-55	125		* 60.0	450					L 11				F	269
DIODE MATRIX 6X8	RAD	RM30	S		-55	125		* 60.0	450					L 7				F	269
DIODE MATRIX 6X8	RAD	RM34	S		-55	125		* 50.0	450					L 20				F	269
DIODE MATRIX 8X5	RAD	RM14	S		-55	125		* 50.0	450					L 20				F	269
DIODE MATRIX 8X5	RAD	RM19	S		-55	125		* 60.0	450					L 7				F	269
DIODE MATRIX 8X5	RAD	RM17	S		-55	125		* 60.0	450					L 7				F	269
DIODE MATRIX,10X10	RAD	RM65	C		-55	125		* 60.0	KD1					L 10				96	
DIODE MATRIX,10X15	RAD	RM59	C		-55	125		* 60.0	KD1					L 10				96	
DIODE MATRIX,10X5	RAD	RM68	C		-55	125		* 60.0	KD1					L 10				96	
DIODE MATRIX,15X10	RAD	RM53	C		-55	125		* 60.0	KD1					L 10				96	
DIODE MATRIX,15X15	RAD	RM50	C		-55	125		* 60.0	KD1					L 10				96	
DIODE MATRIX,15X5	RAD	RM56	C		-55	125		* 60.0	KD1					L 10				96	
DIODE MATRIX,2X4	FSC	FSA2001	A		-65	175		* 40	*D4					*L 25				S	121
DIODE MATRIX,2X4	FSC	FSA1400	A		-65	175		* 50	*D4					*L 4				B,S	121
DIODE MATRIX,2X8	FSC	FSA2000	A		-65	175		* 40	*D4					*L 25				S	121
DIODE MATRIX,2X8	MOTA	MC1118	F		-55	125		* 40.0	KD3					L 90				13	121
DIODE MATRIX,5X10	RAD	RM71	C		-55	125		* 60.0	KD1					L 10				96	
DIODE MATRIX,5X15	RAD	RM62	C		-55	125		* 60.0	KD1					L 10				96	
DIODE MATRIX,5X5	RAD	RM74	C	DTL	-55	125		* 60.0	KD1					L 10				42	
DIODE MATRIX,5X8	RAD	RM12	C		-55	125		* 60.0	KD1					L 11				38	
DIODE MATRIX,5X8	RAD	RM10	C		-55	125		* 60.0	KD1					L 7				38	
DIODE MATRIX,6X8	RAD	RM31	C		-55	125		* 60.0	KD1					L 11				38	
DIODE MATRIX,6X8	RAD	RM30	C		-55	125		* 60.0	KD1					L 7				38	
HALF ADDER	PHIL	PL9605	A	RTL	-55	125		3.0		3	.49	.82	.06	18		.35	.88	69	279
HALF ADDER	PHIL	134A	A	RTL	-55	125		3.0	10	4		.75		105		.50	.83	A,U	144
HALF ADDER	AMEL	141A	F	RTL	-55	125		3.0	42	10			.30			.25	.81	B,C	
HALF ADDER	AMEL	141B	F	RTL	-55	125		3.0	42	6			.26			.25	.81	B,C	
HALF ADDER	PHIL	134A	A	RTL	-55	125		3.0	10	4		.75		105		.50	.83	3,70	
HALF ADDER	NSC	NC1008	A	RTL	-55	125		3.0	10	4,3	.69	.77		75		.15			

CIRCUIT DESCRIPTION	MFR	MFRS PART NUMBER	TEC H	TYPE OF LOG- IC	OPER TEMP CENTGRDE MIN	MAX	SUPPLY VOLTAGE VDC NO. 2	NO. 1	PWR DIS MW	FAN- OUT	INPUT THRESHOLD VOLTS ZERO	ONE	NOISE IMMU- NITY VOLTS	DELAY NANO- SECS	OPER- ATING SPEED MHZ	OUTPUT LEVEL ZERO	ONE	PACK- AGE TYPE	SCHE- MATIC NO.
HALF ADDER	MOTA	MC908	A	RTL	-55	125		3.0	10	4,3	.45	.80		90		.30		A	144
HALF ADDER	PHIL	PL908	A	RTL	-55	125		3.0	10	4,3	.50	.85	.05	75		.10	.90	A,69	144
HALF ADDER	FSC	MWL908	A	RTL	-55	125		3.0	10	4,3	.50	.85	.05	75		.10	.90	A	144
HALF ADDER	AMEL	141C	F	RTL	0	70		3.0	42	5			.25			.25	.81	B	
HALF ADDER	PHIL	PL975	A	RTL	-55	125		4.0	10	5,4	.45	.82		30		.40		01	
HALF ADDER	NSC	NC2008	A	RTL	0	100		3.0	10	4,3	.69	.77		75		.15			
HALF ADDER	TI	SN729	A	RTL	-55	125		3.0	10	4				105				A,74	
HALF ADDER	SPRG	US-0708	F	RTL	-55	125		3.0	10					* 120				T,U	144
HALF ADDER	PHIL	PL9605	A	RTL	-55	125		3.0		4,3	.49	.82	.06	18		.35	.88		
SCRATCH PAD MEMORY 16	SYL	SM80			0	75		5.0	250									H,G	
SHIFT REG DUAL 16-BIT	PHIL	PL5R32	K	MOS	-55	125	-12.0	-24.0	24		3.00	8.00	1.00	300	* 1	2.00	10.00	B	
SHIFT REG DUAL 20-BIT	PHIL	PL5R40	K	MOS	-55	125	-12.0	-24.0	29		3.00	8.00	1.00	300	* 1	2.00	10.00	B	
SHIFT REG DUAL 50-BIT	PHIL	PL5R00	K	MOS	-55	125	-12.0	-24.0	200		8.00	3.00	1.00	300	* 1	9.00	3.00	B	252
SHIFT REG DUAL 8-BIT	PHIL	PL5R16	K	MOS	-55	125	-12.0	-24.0	12		3.00	8.00	1.00	300	* 1	2.00	10.00	B	
SHIFT REG 16-BIT	PHIL	PL5216	K	MOS	-55	125	-12.0	-24.0	24		4.00	8.00	1.00		* 1	3.00	9.00	B,77	334
SHIFT REG 20-BIT	PHIL	PL5220	K	MOS	-55	125	-12.0	-24.0	29		4.00	8.00	1.00		* 1	3.00	9.00	B,77	334
SHIFT REG 32-BIT	PHIL	PL5232	K	MOS	-55	125	-12.0	-24.0	48		4.00	8.00	1.00		* 1	3.00	9.00	B,77	334
SHIFT REG 8-BIT	PHIL	PL5208	K	MOS	-55	125	-12.0	-24.0	12		4.00	8.00	1.00		* 1	3.00	9.00	B,77	334
SHIFT REGISTER ELEMENT	AMEL	117B	F	RTL	-55	125		3.0	50	2			.26			.25	.81	B,C	
SHIFT REGISTER ELEMENT	AMEL	117C	F	RTL	0	70		3.0	50	2			.25			.25	.81	B	
SHIFT REGISTER ELEMENT	AMEL	117A	F	RTL	-55	125		3.0	50	5			.30			.25	.81	B,C	
SHIFT REGISTER ELEMENT	PHIL	PL905	A	RTL	-55	125		3.0	53	5,4	.56	.82		* 40		.30		A,69	249
SHIFT REGISTER ELEMENT	PHIL	PL906	A	RTL	-55	125		3.0	36	4	.56	.82		* 40		.30		A,69	249G
SHIFT REGISTER ELEMENT	NSC	NB1005	A	RTL	-55	125		3.0	53	13	.69	.77		20		.15		2	249
SHIFT REGISTER ELEMENT	NSC	NB2005	A	RTL	0	100		3.0	53	13	.69	.77		20		.15		2	249
SHIFT REGISTER ELEMENT	FSC	L905	A	RTL	-55	125		3.0	53	5,4	.56	.82		* 22		.30		A,D	249
SHIFT REGISTER ELEMENT	FSC	L906	A	RTL	-55	125		3.0	36	4	.56	.82		22		.30		A,D	249G
SHIFT REGISTER ELEMENT	FSC	FL90529	A	RTL	15	55		3.6	80	13				20				A	249
SHIFT REGISTER ELEMENT	FSC	L906C	A	RTL	0	100		3.0	36	4	.55	.84		22		.40		A,D	249G
SHIFT REGISTER ELEMENT	FSC	L905C	A	RTL	0	100		3.0	53	5,4	.55	.84		* 22		.40		A,D	249
SHIFT REGISTER ELEMENT	MOTA	MC805	F	RTL	0	100		3.0	53	5,4	.55	.84		* 40		.40	.84	A	249
SHIFT REGISTER ELEMENT	MOTA	MC906	F	RTL	-55	125		3.0	36	4	.56	.82	.02	* 40		.30	.84	A	249G
SHIFT REGISTER ELEMENT	MOTA	MC905	F	RTL	-55	125		3.0	53	5,4	.56	.82	.02	* 40		.30	.84	A	249
SHIFT REGISTER ELEMENT	MOTA	MC806	F	RTL	0	100		3.0	36	4	.55	.84		* 40		.40	.84	A	249G
SHIFT REGISTER J-K	AMEL	112A	F	RTL	-55	125		3.0	84	3			.30			.25	.81	B,C	
SHIFT REGISTER J-K	AMEL	111C	F	RTL	0	70		3.0	84	3			.25			.25	.81	B	
SHIFT REGISTER J-K	AMEL	114C	F	RTL	0	70		3.0	60	3			.25			.25	.81	B	
SHIFT REGISTER J-K	AMEL	111B	F	RTL	-55	125		3.0	84	3			.26			.26	.81	B,C	
SHIFT REGISTER J-K	AMEL	111A	F	RTL	-55	125		3.0	84	3			.30			.25	.81	B,C	
SHIFT REGISTER J-K	AMEL	112B	F	RTL	-55	125		3.0	84	3			.26			.25	.81	B,C	
SHIFT REGISTER J-K	AMEL	112C	F	RTL	0	70		3.0	84	3			.25			.25	.81	B	
SHIFT REGISTER J-K	AMEL	114B	F	RTL	-55	125		3.0	60	3			.26			.25	.81	B,C	
SHIFT REGISTER J-K	AMEL	114A	F	RTL	-55	125		3.0	60	3			.30			.25	.81	B,C	
SHIFT REGISTER 100 BIT	PHIL	PL5100	K	MOS	-55	125	-20.0	-27.0	250		8.00	4.00	1.00		* 1	9.00	3.00	17	252
SHIFT REGISTER 16 BIT	AMEL	5552	A	TTL	-55	125		5.5	160	6			.80	70		.30	2.50	30	
SHIFT REGISTER 20 BIT	AMEL	5551	A	TTL	-55	125		5.5	190	6			.80	70		.30	2.50	30	
SHIFT REGISTER 8 BIT	TI	SN7491N	A	TTL	0	70		5.0	175	10	.80	2.00	.40	25	15	.40	2.40	H	314
SHIFT REGISTER,10-BIT	GI	MEM508	K				- 12.0	- 28.0			8.00	3.00	2.00		.50	10.0	.20		

CIRCUIT DESCRIPTION	MFR	MFRS PART NUMBER	T E C H	TYPE OF LOG- IC	OPER TEMP CENTGRDE MIN	MAX	SUPPLY VOLTAGE VDC NO. 2	NO. 1	PWR DIS MW	FAN- OUT	INPUT THRESHOLD VOLTS ZERO	ONE	NOISE IMMU- NITY VOLTS	DELAY NANO- SECS	OPER- ATING SPEED MHZ	OUTPUT LEVEL ZERO	ONE	PACK- AGE TYPE	SCHE- MATIC NO.
SHIFT REGISTER,10-BIT	GI	MEM507	K				- 12.0	- 28.0			8.00	3.00	2.00		.50	10.0	.20		
SHIFT REGISTER,20-BIT	GI	MEM3020	K		-55	125		- 26.0	150						1			P	
SHIFT REGISTER,21-BIT	GI	MEM3021	K		-55	125		- 28.0	150						* .50			16	
SHIFT REGISTER,5-BIT	GI	MEM509	K				- 12.0	- 28.0			8.00	3.00	2.00		.50	10.0	.20		
SHIFT REGISTER,9-BIT	PHIL	PL4R01	K	MOS	-20	70	-12.0	-24.0			3.00	9.00	1.00	800	.10	2.00	10.00	88	289
SHIFT REGISTER,9-BIT	PHIL	PL4R02	K	MOS	-55	125	-12.0	-24.0			3.00	9.00	1.00	800	.10	2.00	10.00	88	289
STORAGE REGISTER,4 BIT	SYL	SM71	A	TTL	-55	125		5.0	120		1.50	1.20	1.00		20	.25	3.30	H,G	
STORAGE REGISTER,4 BIT	SYL	SM73	A	TTL	0	75		5.0	120		1.50	1.20	1.00		20	.25	3.30	H,G	
STORAGE REGISTER,4 BIT	SYL	SM72	A	TTL	0	75		5.0	120		1.50	1.20	1.00		20	.25	3.30	H,G	
STORAGE REGISTER,4 BIT	SYL	SM63	A	TTL	0	75		5.0	120		1.50	1.20	1.00		20	.25	3.30	H,G	
STORAGE REGISTER,4 BIT	SYL	SM61	A	TTL	-55	125		5.0	120		1.50	1.20	1.00		20	.25	3.30	H,G	
STORAGE REGISTER,4 BIT	SYL	SM60	A	TTL	-55	125		5.0	120		1.50	1.20	1.00		20	.25	3.30	H,G	
STORAGE REGISTER,4 BIT	SYL	SM62	A	TTL	0	75		5.0	120		1.50	1.20	1.00		20	.25	3.30	H,G	
STORAGE REGISTER,4 BIT	SYL	SM70	A	TTL	-55	125		5.0	120		1.50	1.20	1.00		20	.25	3.30	H,G	
TRANSISTOR ARRAY	RCA	CA3018	A		-55	125		* 20.0	300									11	332
16 BIT MEMORY CELL	TRAN	TM 3164	B	TTL	0	75		5.0	250		1.20	1.80				.45	5.50	H,47	299
16 BIT MEMORY CELL	TRAN	TMC3162	B	TTL	0	75		5.0	250		1.20	1.80				.45	5.50	H,47	299
16 BIT MEMORY CELL	TRAN	TMC3163	B	TTL	-55	125		5.0	250		1.20	1.80				.45	5.50	H,47	299

"The aeronautical and space activities of the United States shall be conducted so as to contribute . . . to the expansion of human knowledge of phenomena in the atmosphere and space. The Administration shall provide for the widest practicable and appropriate dissemination of information concerning its activities and the results thereof."

—NATIONAL AERONAUTICS AND SPACE ACT OF 1958

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